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MR. T. E. SCHWARZ, M.E., who until lately had his head-quarters at Denver, has, we understand, taken charge of the well-known Yankee Girl mine, Colorado.

THE fifty-third annual exhibition of the American Institute of the City of New York will open on the 24th of September. We understand that heavy machinery will be received as early as August 27th, and other goods after September 15th.

FROM all parts of the country come reports of activity in preparing for the World's Industrial and Cotton Centennial Exhibition at New Orleans, which will be opened in the beginning of December, and will remain open until the end of May, 1885.

THE German iron-masters, of course, continue ardent protectionists, and take pains to gather and give to the public statistics bearing out their claims in behalf of the wisdom of the higher duties introduced only a few years since. Their association, which includes more than 350 firms, is said to represent a capital of fully 1050 millions of marks, and employs about 235,000 men, of whom 24,000 work in 78 iron mines, 86,000 in 284 iron and steel-works and blast-furnaces, 30,000 in 242 foundries, 44,000 in 110 machine-shops, 16,000 in 23 car-shops, 4000 in 5 ship-building works 11,000 in 4 copper-works, and 16,000 in 38 collieries and coke-works. In January, 1879, 320 of these works employed 151,582 men, whose wages aggregated 9,581,409 marks a month ; while in January, 1884, the same works gave employment to 201,888 workmen, who were paid 14,571,529 marks—an increase during that time of 33·2 per cent in the number employed and of 52·1 per cent in their total monthly wages. In January, 1879, the average monthly receipts per person employed were 63·21 marks, which had risen to 72·18 marks in January, 1884. Assuming the wages in the two years to have averaged as high as in the first month, this increase would represent an addition of nearly 60 millions of marks in a year to the men employed by only that part of the German iron and machinery trades represented by the association. The following table will still better illustrate the point they make:

INCREASE IN WAGES IN GERMAN IRON-WORKS AND MACHINE-SHOPS.

All works.	From 1879 to 1882.	From 1879 to 1883.	From 1879 to 1884
Number of works	338	325	320
Increase in number employed	25·2 per cent.	33·9 per cent.	32·2 per cent.
Increase in total wages	42·0 "	57·2 "	52·1 "
Increase in wages per employé	13·4 "	17·4 "	14·2 "
Iron and steel-works.			
Number of works	138	139	145
Increase in number employed	23·5 per cent.	26·9 per cent.	26·3 per cent.
Increase in total wages	39·4 "	50·4 "	41·4 "
Increase in wages per employé	12·9 "	18·5 "	11·8 "
Machine-shops.			
Number of works	200	186	175
Increase in number employed	29·3 per cent.	50·9 per cent.	52·9 per cent.
Increase in total wages	48·3 "	73·6 "	82·2 "
Increase in wages per employé	14·6 "	15·0 "	19·2 "

These figures are certainly striking. They show that the men in machine-shops have enjoyed a steady increase in wages, and that there has been more work, while the German iron trade has not entirely escaped the troubles that have affected the prosperity of the iron trade all over the world, though in a less marked degree. The employers have also been gainers: 120 stock companies had, in their fiscal year 1879, a share capital of 369,754,763 marks, which, after writing off for depreciation, etc., yielded a profit of 5,929,414 marks, or only 1·6 per cent. In their fiscal year 1883, their capital was 356,293,340 marks, while the profit had increased to 24,194,278 marks, or 6·79 per cent.

MR. WALTER WELDON, who is one of the greatest living authorities on the manufacture of soda, in a recent address as retiring president of the Society of Chemical Industry, has, in his usual clear and admirable style, sketched the latest developments in that great industry. Directly affecting as it does pyrites mining, and indirectly an important part of the copper trade, the struggle between the Leblanc and Solvay processes of soda manufacture is one in which many engaged in mining are interested. During the past year, the Leblanc soda manufacturers have obtained a breathing spell, and are able to make both ends meet, although their process per given quantity of soda yielded by it is more than 70 per cent more costly than the ammonia soda process. This has been brought about by the fact that the hydrochloric acid, once almost a waste product of the Leblanc process, has appreciated in value through the decline in the production. Mr. WELDON addresses himself to the discussion of the questions whether the Leblanc process is likely to remain the only means of obtaining hydrochloric acid, and above all, whether the production of the latter must always be, as now, an essential condition precedent of the production of chlorine. At present, the chlorine in the salt that is decomposed by the ammonia process is thrown away as calcium chloride. Mr. WELDON does not expect much in the way of the recovery of this chlorine from the ammonia process by the Mond process, which was believed by many to solve the question, and he rejects the idea of obtaining hydrochloric acid by first decomposing the salt to be used in the ammonia process in the same manner that it is treated by Leblanc's method. He concedes to the new process of CAXEY, GASKELL, and HURTER of Widnes, a practical value, but holds it be eclipsed by the method developed by PECHINEY & Co., of Salindres, France. It is based upon the old idea of decomposing the ammonium chloride of the purest form of the ammonia process by magnesia, and then so treating the resulting magnesium chloride as to obtain its chlorine in a useful form, and at the same time to regenerate magnesia for use again. Thus, by evaporating per ton of ammonia soda manufactured, a quantity of solution of magnesium chloride containing about 5½ tons of water, and then heating in the presence of air a mixture of about 18½ cwts. of magnesium chloride with about 8 cwts. of magnesia, they obtain a quantity of pure chlorine corresponding to very nearly a ton of bleaching-powder

and in addition a quantity of hydrochloric acid corresponding to something over a ton of aqueous acid of 27 per cent. Mr. WELDON reaches the conclusion, therefore, that the Leblanc process is not destined to remain the only means of obtaining hydrochloric acid. There is another fact that is destined to further restrict its sphere. Modern industrial chemistry is revolutionizing the methods by which chlorine is obtained from hydrochloric acid, the raw material furnished by and now so vital to the future of the Leblanc process. Until now, two thirds of the chlorine have been wasted. Recent improvements of Messrs. PECHINEY & CO., which it would lead us too far to detail, will, according to Mr. WELDON, diminish by two thirds the quantity of Leblanc soda necessary to be manufactured from producing a given quantity of chlorine from the hydrochloric acid incidentally made. There seems, therefore, little doubt but that the old soda process is doomed to a further restriction—a fact that in years can not fail to have the effect of completely revolutionizing the business of the great pyrites companies of Spain and Portugal, and forcing them more and more into becoming producers of copper. In our own country, a far greater share than in Europe of the sulphuric acid manufactured is used for other purposes than the manufacture of soda, so that our growing pyrites industry is not likely to receive a check.

THE CENSUS REPORT ON THE STATISTICS AND TECHNOLOGY OF THE PRECIOUS METALS.

Although it has been in print for some time, we are not quite sure whether the census report on the statistics and technology of the precious metals has yet been published, being indebted to one of the gentlemen who has had charge of part of the work for advance-sheets. One of the chapters, that containing the bare statistics of the bullion production, was published more than a year since, and the many evidences of the unreliability of the figures submitted made it the subject of sharp attacks, and contributed to discredit it in the estimation of many. Making due allowances for the fact that the precious metal mining industry is one that is extremely difficult to handle even by statisticians trained to the special work, it must be admitted that very serious blunders were made in the collection of the data—blunders for which it could not be pleaded that they might have grown out of unavoidable minor errors of recording, or out of a tendency on the part of some mine-owners to make deliberate misstatements. It is not surprising, therefore, that a mining engineer is disposed to peruse the report of the census, if not with distrust, at least with some hesitation, in accepting its figures, because he is unable to "go behind the returns." He might agree with the announcement made in the preface, that "on a great number of subjects absolutely accurate totals, if they could be obtained, would be mere curiosities, and of no more use than approximations, with a probable error of 5 per cent," and that, "in the examination of technological questions, totals are usually of very little consequence, and what is needed is statements as to construction and practice founded on a sufficient number of instances to secure their representative character." But with his faith in the reliability of the statistics shaken, is he likely to accept the 5 per cent admitted, as the possible limit of error? Although we know that the gentlemen who have had charge of grouping the returns and working out the conclusions have performed their labor with the greatest diligence and in a severely critical spirit, we are not inclined to accept without reserve the figures given. We are told, for instance, that 320 mines reported a plant of 425 having a total horse-power of 22,559, of which 13,735 horse-power was in Nevada mines, leaving only 3060 horse-power for Colorado, and 2247 horse-power for California. We question very much whether this sums up to the total even within four times five per cent, and yet to the great mining machinery trade of the country an accurate total would not have been "a mere curiosity." We might multiply such instances to show that the statistical data in regard to equipment are, to say the least, incomplete, so far as the totals go. It is quite a different matter with the tables of details, in which, for instance, the type of the hoisting-engine of a large number of mines, the kind of pump, hoisting arrangement, rope, etc., are given, and in this respect the Comstock lode is particularly well treated. Our object is to warn the public against accepting the summaries given as correct from a statistical point of view. They have a value, which probably only the persons who compiled them can estimate, as indicating in a vague, general way, what the prevailing practice is.

After all, however, the bulk of the 400 pages or more of reading matter is descriptive and general, and will be welcomed as a valuable contribution to the literature of mining in the United States, and reflects credit on Messrs. S. F. EMMONS and G. F. BECKER, who planned the work under Mr. CLARENCE KING, and after his resignation had direct charge of it. Mr. BECKER is specifically credited with a geological sketch of the Pacific division, while Mr. S. F. EMMONS prepared a similar summary of the geology of the Rocky Mountain division. The high standing of both these gentlemen as authorities in this special branch of inquiry makes any comment on their work unnecessary. The third chapter is that to which we have already referred. Its chief value lies in the detail tables, among which we notice with pleasure, besides these already alluded to, tables on the prices of mine and mill supplies. Mr. ALBERT WILLIAMS, Jr., is credited with almost the entire work of compiling the figures in the fourth chapter, on hydraulic mines and ditches, and discussing them. Both this chapter and the one following it, on amalgamating mills, the latter based chiefly on a report made by Mr. J. S. CURTIS, will be read with particular interest. Both of them are full of suggestive technical details. Mr. S. F. EMMONS contributes a brief description of lead-smelting in Leadville, which, according to the preface, is founded on a report by Mr. A. GUYARD. Since it was written, the figures for cost of smelting, smelting charges, and prices paid for ore are entirely different, and a good deal of the ore supplied to the furnaces has changed in character. The eighth chapter is that on bullion production, which was widely distributed in separate form more than a year ago. Mr. ALBERT WILLIAMS, Jr., contributes also a sketch of the minting operations at the Carson and San Francisco mints.

The report contains much that is valuable, but in many of its sections only the experienced expert can separate the gangue from the ore.

THE ARTESIAN WELLS OF DENVER.

A committee of the Colorado Scientific Society has published what may be called a series of reports on the artesian wells of Denver, each of the four members having worked at the branch assigned to him. Thus, Mr. Whitman Cross has furnished the data concerning the geological relations of the Denver basin; Mr. Frederick F. Chisolm has contributed a history of artesian well-boring in Denver, together with some general conclusions and recommendations; Mr. Regis Chauvenet has contributed analyses of the water from different depths; and Mr. P. H. van Diest discourses on the general topic of the accumulation of subterranean water bodies and rain-fall. Altogether, the pamphlet is a very creditable one, both to those who are its authors and to the society under whose auspices it has been made. The water-bearing strata belong to the Laramie or Lignitic group, whose variability is reflected in the peculiarities of the wells. Mr. Cross concludes in a general way that where the Laramie formation is present with upturned edges along the base of the mountains, the chances for an artesian well are good, and calls attention to the circumstance that the bottom sandstone of the Laramie group, which no Denver well has yet reached, is likely to contain a large supply of water. Mr. Chisolm states that two sandstone seams have been identified, which bear water of sufficient hydrostatic pressure to insure a regular supply without pumping; but its pressure varies considerably, even in wells only short distances from one another. The average pressure of the 375-foot seam is about ten pounds, while that of the 600-foot seam is about twenty-eight pounds. According to Mr. Chisolm, there are now about 80 artesian wells in Denver, whose aggregate flow is roughly 2,880,000 gallons per day of twenty-four hours. In some cases, the flow of the wells has been uniform and unvarying, though the greater number have exhibited a gradual decrease, partly due to the insufficiency of the packing and tubing. Mr. Chisolm takes a strong and, we are sure, a just stand against the great waste of water, and seems to believe that its prevention calls for special legislation. Messrs. Chauvenet and Gehmann report the following as the results of analyses made, in parts of 100,000:

	Anderson well.	Windsor well. Upper flow.	Windsor well. Lower flow.	Court-house well.
Total solid residue	17·85	17·20	18·45	56·60
Calcium sulphate	1·49	1·46	1·58	0·62
Calcium carbonate	....	....	...	2·81
Sodium carbonate	14·09	13·60	14·54	27·14
Sodium chloride	....	....	...	24·07
Sodium sulphate	0·75	0·75	0·75	....
Magnesium chloride	0·17	0·17	0·12	....
Magnesium carbonate	....	....	...	0·55
Ferrous carbonate	0·05	0·05	0·05	...
Silica	1·18	1·05	1·30	1·08
Total	17·73	17·08	18·34	56·37
Lime	0·62	0·60	0·05	1·84
Magnesia	0·07	0·07	0·05	0·26
Soda	8·57	8·28	8·83	28·65
Ferrous oxide	0·03	0·03	0·03	0·07
Sulphuric oxide	1·30	1·30	1·35	0·36
Silica	1·18	1·05	1·30	1·08
Chlorine	0·12	0·12	0·08	14·61

ELIMINATING ARSENIC FROM ZINC.—The *Revue Industrielle* reports that M. L. l'Hote has brought forward a process for eliminating arsenic from zinc. According to the figures presented by M. Peligot to the French Academy, but little commercial zinc is absolutely free from that impurity. In one kilogram of the metal, M. Peligot found the following quanties of arsenic:

	Milligrams.
Vieille Montagne sheet zinc	38·0
" " " "	30·0
" " " "	20·0
Harfleur " "	10·5
Asturienne Co. " "	26·0
Vieille Montagne spelter	Trace.
Silesian spelter	Trace.

Instead of fusing with nitrate of potash and redistilling as heretofore done to obtain a pure article, M. l'Hote injects into the molten zinc from 1 to 1·5 per cent of anhydrous chloride of magnesia. On stirring, fumes of white chloride of zinc escape that carry off the arsenic. Cast into cold water, the granulated zinc thus obtained is absolutely free from arsenic, and is attacked by sulphuric acid diluted with ten times its volume of water. Antimony is eliminated in the same way, though it occurs only rarely in zinc.

COAL AND IRON IN OHIO.

From our Traveling Correspondent.

Having recently returned to Ohio after a trip that took in Columbus, Indianapolis, Chicago, Detroit, and Cleveland, in each of which I took some pains to inquire into the state of the iron and coal interests, a review may be of interest. At Columbus and in the Hocking Valley, I find the iron industry almost completely stagnant, and the strike has well-nigh paralyzed both the coal operations and those of that part of the railroad line. But while operations were paralyzed, it must not be inferred that either operators or miners were in that inoffensive condition. On the contrary, each seemed full of grit and determination. The operators had three weeks ago begun the importation of day hands, and declared their full determination to free themselves from the "tyranny of the Amalgamated Association." They say that it is no longer a question about the price of mining, but a determination on their part to no longer submit to the dictation of others as to how they shall run their own business. They declare that the Hocking Valley mines, with every advantage (except haulage, which is about equal) over other districts capable of a large output, has been lagging more and more, because of the unreasonable, foolish, and arbitrary dictation of the Miners' Union, until now it has in this year's contracts "got left" entirely behind, and the operators are determined that not another man shall enter their mines to work except under individual contract and subject to their unquestioned control; and also that coal in the Hocking Valley mines can be mined at a cost not to exceed 50 cents a ton, and they are fully determined to accomplish it if, in order to do so, they are compelled to put in machines and teach outside men to work them. The harassing circumstances under which they have been working imported help, and the persistence with which they continue to import men to keep up an output, though it be so far a small one, indicate that starvation is much more likely to come to the workmen than that the operators will agree to the old order of things. The miners, on the other hand, seem very determined in their position, and are backed not only by the sympathy and contributions of the Union, but also sustained by strong sympathy among the people. The latter, however, is liable to weaken under a continued strain, and the former is not inexhaustible. But the probability is, that it will be September, and more likely November, before any thing like the former output will appear from the district. The Ohio Central road and mines are reaping something of a harvest in the way of quantity of coal mined and shipped in consequence of the strike, as they are running right along, paying 70 cents a ton for mining. The Indiana Block is having a large sale, and since the 15-cent reduction in mining, the operators seem very well satisfied. The situation of the coal interests at Chicago is so well set forth from week to week that I need not take time to report it. I will say, however, that the largest concerns in the merchant iron trade report an increase in sales and still more hopeful signs of returning activity, which means that the lately reported improvement in the coal trade of the West has come to stay, and will gradually increase. At Detroit, the soft coal trade is "all torn up," as usual, and is likely to continue so as long as the present unbusiness-like methods prevail. The anthracite trade moves along steadily. Mr. Pittman, who is doing by far the larger part of that trade, is a very systematic, business-like style of man, and manages to control the business with but little friction, and, though the margin is small, prices are, compared with the soft coal, very regular. At Cleveland, I found the local trade somewhat demoralized on account of the failure of the "Retail Dealers' Association;" still, Beidler & Co., and other large dealers, seem pretty well satisfied with the state of things.

The Valley Railroad, the output of which is principally consumed in Cleveland by the mills and factories, shipped an average of 60 cars a day during July, and one day brought 94 cars from the mines along its own line, in addition to which it receives and brings to the city coal from the Pittsburg, Cleveland & Toledo and other connecting roads. During August thus far, the average on the Valley has not been quite equal to July, partly owing to the rolling mills being shut down. A new manager to succeed Mr. Briggs, now of the Connotton, has been appointed. Mr. J. E. Turk, under whose superintendence the road has attained its present position, will remain as engineer and superintendent, thus insuring the continued prosperity of this, if not the best at least one of the best paying local roads in the West. The Salineville and Mahoning Valley districts are doing some business, but not equal to the average of former years on the line of the Cleveland, Lorain & Wheeling. The mines in the Massillon District are doing fairly, some quite well, notably Elm Run, which is now running nearly if not quite full-time; but the large mines down at Maynard and Wheeling Creek are doing but very little, which makes a decided decrease in the tonnage of that line. I noticed that the Burton & Ridgeway mines, below Canton on the Valley Railroad, are loading from 8 to 10 cars each a day; while the Lake View, which is near Akron and in the Massillon District, and has a capacity of 20 cars a day, is putting out only from 5 to 6 cars a day. The Beaver Run mine, which has an outlet over the Wheeling & Lake Erie, the Connotton Valley, and the canal, has worked full force and full-time all the season. David Barnheisel, of Cleveland, has opened a new mine on the valley line near Mineral Point and adjoining the Burton & Ridgeway Company's Pioneer. The first shipments were made last week, and from 2 to 3 cars a day are shipped right along. The quarrel in the Miners' Union between President McBride and Secretary Williams is not yet ended. When the Hocking Valley miners first struck, the Union ordered that no man should resume work at any price until the notices of a reduction that had been posted were taken down; recently, however, an order was passed permitting the men to go to work at 70 cents, notices "to the contrary notwithstanding." The operators think this means weakening among the miners. On the whole, the outlook for the fall business is improving, and while there is no probability of consumption being equal to the capacity of output, there is good reason to expect a fair fall business and increasing trade during the winter.

August 12.

THE Journal of the Franklin Institute prints an elaborate paper by Mr. Charles J. Quétil, on his wire triangular truss.

RECENT EXPERIMENTS WITH EXPLOSIVE GELATINE.

According to the reports of improvements made in Prussian mines, published in the *Zeitschrift für das Berg-, Hütten- und Salinen-Wesen*, comparative experiments with dynamite and explosive gelatine were made in blasting out an underground engine-room in the Adelphi shaft of the fiscal Friedrich lead mine at Tarnowitz, Upper Silesia. The dynamite, which was first quality, contained 75 per cent of nitroglycerine, and cost, delivered, 190 marks per 100 kilograms. The explosive gelatine, costing 290 marks delivered, was used with a detonating cartridge of one quarter of the above dynamite. Per cubic meter of very hard dolomite removed, it was necessary to employ 0·524 kilogram, while only 0·247 kilogram of explosive gelatine with an addition of one quarter dynamite was required, the cost being 0·997 mark in the first case, and 0·665 mark in the second. In spite of the much higher price of the gelatine, its use brought about a saving of 33·3 per cent, coupled at the same time with an increase in the work of the men of as much as 50 per cent. This is another proof of the fact that in blasting out large excavations where it is possible to increase the resistance, and where the rock is solid and hard, explosive gelatine is far superior to dynamite. With the former, too, the gases dissipate much more rapidly, so that the men can re-enter the working-places much earlier. The action peculiar to all dynamites of shattering the rock beyond the depth of the hole is particularly great in the case of explosive gelatine.

The following results were obtained in a number of drifts and inclines in the Freiesleben shafts of the Mansfeld Copper Corporation. Almost without exception, they showed an increase in the work through the use of explosive gelatine, and although the latter cost 135 marks per 100 kilograms more than dynamite, the cost per shift and per cubic meter excavated was generally lower, as the following table shows:

No.	Nature of ground.	Explosive used.	Number of shifts.	Advance. Meters.	Rock excavated. Cubic meters.	Excavated per shift. Cubic meters.	Cost for explosive. Per shift. Marks	Cost for explosive. Per cubic meter. Marks.	Increase of work. Per cent.
I ..	Solid Rothliegende.....	Dynamite.	821	54·5	218	0·26	1·15	4·32	....
		Explo. gel.	475	41·5	166	0·35	1·15	3·30	35
II ...	" "	Dynamite.	533	34·5	138	0·26	1·10	4·24	....
		Explo. gel.	270	22·0	88	0·33	0·93	2·84	27
III...	Gypsum...	Dynamite.	2000	92·0	368	0·18	1·02	5·58	....
		Explo. gel.	610	41·5	166	0·27	0·98	3·62	50
IV...	Copper shale and hanging...	Dynamite.	1413	198·0	990	0·70	1·64	2·33	....
		Explo. gel.	407	72·0	360	0·88	1·37	1·55	26
V....	Copper shale and hanging...	Dynamite.	860	123·5	494	0·57	1·81	3·16	....
		Explo. gel.	428	60·5	242	0·57	1·11	2·37	....
VI...	Copper shale and hanging....	Dynamite.	1002	135·5	542	0·54	1·90	3 51	....
		Explo gel.	584	96 0	384	0·66	1·31	1·99	22
VII..	Copper shale and hanging	Dynamite.	531	47·0	282	0·53	1·32	2 49	....
		Explo. gel.	257	33·0	198	0·77	1·39	1·81	46

No. V. shows no gain in favor of explosive gelatine, because the stratification of the copper shale was more irregular at the time when the experiments with it were carried out than at the time when dynamite was used.

THE WOLF SAFETY-LAMP.

At the Chicago meeting of the American Institute of Mining Engineers, Mr. Eugene B. Wilson, of Drifton, Pa., described the Wolf safety-lamp, which differs essentially from the Mueseler, its parent type, in that it burns benzine, which is less expensive, gives a brighter and more uniform light, does not deposit soot, and, as a finer wire gauze may be used, is safer. The body of the lamp that contains the benzine is packed with mineral wool to prevent spilling, and the wick is made of the same material. The opening of the lamp is prevented by a lock, which is operated by a magnet.

The last issue of the *Zeitschrift für das Berg-, Hütten- und Salinen-Wesen*, just received, gives the results of the experience with the lamp at the Dudweiler colliery at Saarbrücken, where fifty lamps were in use. It was found that the magnet lock could not be opened by the miners without injuring it, and that the lighting power of the lamp, burning benzine, is about three fifths greater than that of the Mueseler, using rape-seed oil, as photometric measurements proved. The Wolf lamp was found to be very sensitive to fire-damp, more so than the Mueseler, and burned better in bad air. The use of benzine led to no serious trouble. It is only necessary to insist that no more benzine is filled into the reservoir than the mineral wool will absorb. Then dripping of benzine from it, even when the lamp is dropped, is avoided, and there is no trouble from any smell of benzine.

With all these great advantages, the Wolf lamp has the drawback of being extinguished easily, being particularly sensitive to the slightest shock. It will generally be put out by simply falling over, by the pressure of a moderate blast, or by the shock that a lamp hung on a car will undergo when swinging around or going around a curve. At the Dudweiler colliery, a lighting station was established and a record kept. In the month of April, 1883, thirty lamps, in 16 shifts, had to be relit 743 times, or 46·4 times in a shift. In May, the result was even more unfavorable during 15 shifts, the 28 lamps going out 957 times, or 63·8 times in a shift. Even though the extinguishing of the lamp with such frequency were partly due to malice on the part of the men, it proved that the lamp was very sensitive. The record of the next four months was as follows:

Month.	Number of lamps.	Number of shifts.	Total times extinguished.	Times extinguished, per shift.
July, 1883....	11	23	357	15·5
August	10	26	434	16·7
September.....	10	25	363	14·5
October.	11	23	261	11·4

It is true that it appeared that the lamps of the men who were at work

at the greatest distance from the lighting station did not go out as frequently.

The lamps thus experimented with were not equipped with a lighting arrangement, referred to in Mr. Wilson's paper as consisting of a tape carrying at small intervals percussion-wafers exploded by a hammer actuated by a spring. The German report from which we quote states that 'the advantages of this lighting arrangement are so great that with it the Wolf lamp would be considered one of the most complete, if the relighting arrangement had not thus far proved defective. With such a lamp, the following results were obtained at the Dudweiler colliery:

MONTH.	Number of shifts.	Number of lamps.	Times extinguished.		Times relighting device failed to act.		No. of times lamps had to be opened.
			Total.	Per shift.	Total.	Per shift.	
July.....	15	1	22	1·47	84	5·6	4
August.....	26	1	29	1·10	134	5·0	9
September....	25	1	28	1·10	112	4·5	13
October.....	23	1	2	0·09	11	0·5	....

One of the principal disadvantages of the relighting device is, that the mechanism for moving the wafer strip forward clogs, and that then the lamp must be unscrewed. The igniting hammer, too, does not always strike the percussion-wafers, and the latter attract moisture and frequently refuse to ignite. The paper strip in time becomes soft, and tears so that the lamp must be opened. The lamp uses only one eighth of a liter of benzine per 12-hour shift, costing 3·61 pfennige in Germany, as compared with an expenditure of from 5·40 to 5·95 pfennige for the rape-seed oil of a Mueseler lamp.

THE MANUFACTURE OF ALUMINIUM

Heretofore, aluminium has always been made by treating its chloride with metallic sodium as a reducing agent. But the great trouble in handling this material, and its very high cost, have made such a process difficult and expensive—the price of aluminium at present being higher per ounce Troy than silver. This has limited its uses and its manufacture in commercial quantities to the sole factory in Paris, France.

William Frishmuth, a German chemist living in Philadelphia, and a pupil of Woehler, who discovered aluminium, has been working for twenty-eight years to solve the problem of making cheap aluminium in commercial quantities. Within the past few years, he has discovered and secured patents throughout most of the civilized world, for a process that now produces aluminium in a commercial way at one third the cost of any other, with almost a certainty of being reduced to $1.25 per pound avoirdupois when worked in a large plant, with proper technical and practical management, ample capital, and perfected mechanical and chemical means.

Instead of using metallic sodium as before mentioned, he uses a vapor, produced or generated in a suitable vessel from a mixture of sodium carbonate, or other suitable compound of sodium, and carbon or other reducing agent. And this sodium vapor, not metallic sodium, as used in the Deville process, is made to react in various ways upon the aluminous materials to produce aluminium. Therefore, the economy of the proved Frishmuth process is about as follows, estimated for illustration on a theoretical basis: The manufacture of 20 pounds of aluminium requires 115 pounds of sodium carbonate, at a cent a pound, or 50 pounds metallic sodium at from $2.50 to $3.50 a pound. Therefore, one pound of aluminium requires, by the Deville process, 2½ pounds metallic sodium, costing from $6.25 to $8 75; or by the Frishmuth process, 6 pounds sodium carbonate, costing say 6 cents. Practical operations are said to increase the quantities by the Deville process to from 3 to 4 pounds of metallic sodium, and by the Frishmuth process to say 12 pounds sodium carbonate.

Both Deville and Frishmuth have to use the double chloride of aluminium and sodium, although Frishmuth has a patent for his successful use of the double fluoride of aluminium and sodium in making aluminium. This is another great item of cost in making this metal. But Frishmuth has made improvements in making the double chloride of aluminium and sodium that reduces its cost to a few cents a pound, and consequently that of the metal. As this double chloride is the cheapest of a few known chemical substances used in making aluminium cheaply and in commercial quantities by chemical or electrical processes, the saving in cost, through such discovery by Frishmuth, in making this metal, will be very great, and almost as much as by the use of his sodium mixture in place of metallic sodium.

On account of the use of sodium and chloride, the wear and tear on retorts, crucibles, and apparatus is usually great. But in the apparatus now used in Philadelphia, designed by Frishmuth, this item of cost is much reduced, and will be further reduced when heated by Wilson producer gas instead of coke.

The metal is superior in quality to the French, being purer and whiter. Its specific gravity is 2·73. It has been tested in New York, London, and Paris in a commercial way, and can be sold at the market price. All manufacture has been in the experimental and developing way, and Frishmuth has sold metal thus made to the extent of many thousands of ounces. Recently he made in a few days several ingots of 40 ounces Troy each, the quality of which was severely tested.

The use of the metal will increase as the price decreases, and when sold eventually, say, at 30 cents an ounce, the consumption here and in Europe should be 120,000 ounces Troy a day. It has greatest value as an alloy, especially with silver and copper, as it gives a non-tarnishing and non-corrosive quality to such metals, and greatly increases the tensile strength. Aluminium bronze is made by alloying 10 pounds of aluminium with 90 pounds of copper, and has a tensile strength of three tons per square inch more than Bessemer steel.

Frishmuth has invented a solder for aluminium that welds the metal with itself or with copper, tin, lead, and iron. The color is the same as the metal. This will greatly increase the use of the metal, and is of great benefit to the arts and industries.

DEMAND FOR SMOKE "CONSUMING" IN CHICAGO.

The subject of smoke consuming is an all-absorbing topic among the steam-users of Chicago, according to the *American Machinist*. Some time ago, an edict went forth from the wise fathers who rule the city of Chicago, that no more smoke would be tolerated from the stacks of furnaces of high or low degree. This brought forth a most fertile crop of smoke-consuming patents, and the inventors, or rather adapters of old devices, naturally expected to reap a rich harvest. Some steam-users did not desire to burn their smoke, and they felt that the ordinance forbidding the emission of smoke into the atmosphere was a violation of their free-born rights. Accordingly, some of them paid no attention to the behests of the city council, and they were prosecuted and convicted. The case was appealed to the Supreme Court, and that tribunal has decided that the city ordinance is valid and binding. While the case was pending, the smoke-consuming ordinance was permitted to fall into abeyance, and the stationary boilers, tugs, and locomotives continued to darken the air with the dense smoke that Illinois coal alone can produce. Fortified in backbone by the Supreme Court decision, the council is now determined to enforce strictly the smoke-consuming ordinance, and the situation is becoming full of interest.

Meanwhile the owners of smoke-consuming patents are complaining that their devices are not getting justice, and alleging that engineers and firemen are prejudiced against all smoke-consumers and will not try to make them work. Interviews with several smoke-consuming device owners that have been published indicate that there is a wide-spread discontentment at smoke-consuming patent appliances not meeting with greater favor than they receive from steam-users. The fact is, that any steam-user can equip his furnace or fire-boxes with excellent smoke-preventing devices that are not patentable, because patents upon them have expired many years ago. A brick arch or bridge to deflect the flame and the means of regulating the admission of air above and below the grates form the best combination that has ever been tried for smoke-prevention. In the hands of a careful fireman of ordinary skill, this arrangement will prevent all trouble with smoke, and any steam-user can apply it without fear of infringing any patent.

THE GEOLOGY OF KANSAS.

The geology of Kansas, according to Mr. O. St. John, in the biennial report of the State Board of Agriculture, is of a simple nature, and almost entirely composed of three principal formations—the Carboniferous, the Cretaceous, and the Tertiary. The Paleozoic rocks, as represented by the Carboniferous, appear at the surface over an area of about one third of the entire extent of the State, entering it from the southeast, and eventually passing beneath the Dakota sandstone, which is the line of demarkation between the Paleozoic and Mesozoic series. After the disappearance of the Carboniferous rocks underneath this sandstone, they are not seen again until the Rocky Mountains, where their upraised edges have been bared by denudation at the foot of the ranges. The lowest member of the Carboniferous (lower), as seen in Kansas, is the Keokuk limestone, which occupies a small area of about 40 square miles in the extreme southeast corner, and consists of bluish-gray siliceous limestone, interbedded with cherty layers above, and often associated with brecciated siliceous matter. Limited as the Keokuk area is, it is of exceeding value to the State; for it includes the ore district of lead and zinc, and has already brought a considerable population to the newly-founded towns of Empire and Galena, on the banks of Short Creek, a tributary of the Arkansas. Not only has a busy mining district been here established, but, owing to the excellence and accessibility of the Cherokee coal measures, a little to the west, the ores can be speedily and cheaply reduced at the furnaces of Weir and Pittsburg, a few miles to the north. Galena, the ordinary sulphuret of lead, furnishes almost all the ore of that metal, together with its derivatives, cerussite or carbonate of lead (the "dry bone" of the miners), and pyromorphite or phosphate of lead. As is usually the case, the lead carries a small percentage of silver, from 1 to 1½ ounces to the ton of ore. The zinc ores consist of the common blende or sulphuret, "black jack," calamine (hydrous silicate), smithsonite (carbonate), and zinc bloom, many of the ores being of great beauty from their amber and garnet tint.

Associated with the ores are chalcopyrite or copper pyrites, green carbonate of copper, bisulphuret of iron or mundic, calcite or "glass-tiff," dolomite, quartz, and bitumen. The base rocks of the district consist of a deposit of limestone 100 feet in thickness, charged with characteristic Keokuk fossils, which, however, are much comminuted and splintered, and bear evidence of the pressure and tension to which the strata have been subjected. The Kansas ores are similar in almost all parts to those of the Missouri District, and it is considered quite possible that time will reveal the existence of other ore-bearing strata.

The large area of upper Carboniferous series may be roughly divided into upper and lower coal measures, the latter occupying between 4000 or 5000 square miles, and passing in the west conformably beneath the upper measures. The series is largely made up of shales and sandstones, with occasional thin beds of limestone and iron ores, but its chief economic value consists in possessing workable beds of coal. These are mostly distributed in the lower 400 feet of strata, and are somewhat irregular and variable in thickness. Some of the coals, indeed, are found in little isolated basins or pockets, filling trough-like depressions surrounded by ledges of the older formation; but as a rule, the thinner coal-beds are remarkable for their persistence over a large extent of ground. The Cherokee coals are of a very superior quality, and they (together with most of Kansas lower beds) contain less sulphur than the coals of either Illinois or Iowa. Naturally there is a great demand for coking purposes and local consumption, while pretty heavy shipments are made to the towns and cities on the Missouri River. These lower coal measures also contain excellent building-stone and hydraulic limestone, which is extensively utilized for making cement. The general inclination of the strata is north of west, with a dip that seldom exceeds 10 degrees. The estimate of the lower coals, from an aggregate thickness of 4 feet, is 20,000,000,000 tons, and if the area be extended to that occupied by the overlying upper

measures, so as to reach the lower coals accessible from 500 to 1000 feet, the product may be fairly estimated at double.

The upper coal measures have an aggregate vertical thickness of at least 2200 feet, the exposed area extending for 24,000 square miles; but in the character of the component strata they present a marked contrast to the lower series, on account of the limestone ledges that form such striking features in the landscape. The lower beds are characterized by frequent and thick deposits of gray limestone, succeeded in the middle portion by darker, rusty, weathered ledges, and in the upper by light, buff-gray rock. The sandstones occur in some half-dozen well-developed horizons along the line of the Kansas Valley, usually in the condition of arenaceous shales, and affording local supplies of building and flagging stones. In Osage County, these have an additional interest, as being marked with casts and tracks of gigantic batrachians. The limestone beds are somewhat deteriorated for building purposes by cherty deposits; but, on the other hand, they contain ironstone nodules of hematite and carbonate ores, with crystals of sulphate of lime and beds of massive gypsum, varying in thickness from 5 to 15 feet. These gypsum deposits are capable of affording inexhaustible supplies, which are used most beneficially as manure for the soil. Where the cherty concretions are not met with, the limestone beds yield magnificent building-stone, the texture and coloring of which can be seen to great advantage in the State-House of Topeka and many other public buildings. The upper coals are distinguished from the lower by their more brittle texture and a larger percentage of ash and impurities. Though there are several valuable and persistent seams, such as the Blue Mound and Osage coals, thinness is a decided characteristic of the upper measures, few, if any, being above 30 inches, and the greater number not exceeding 10 inches. But, although the upper measures are clearly of not so much economic importance as the lower, it is quite possible to reach the lower by tolerably deep borings through the upper, and indeed this has been already successfully demonstrated.

THE LAW OF THE APEX.*

By Rossiter W. Raymond, New York City.

(*Continued from page* 91.)

The definition here given to the term "in place" is too narrow. Neither the usage of science nor the usage of practice requires that rock in place shall be wholly inclosed in other rock also in place. The term is not without elasticity: but its fundamental meaning is, that the rock occupies, with relation to the mass of the adjacent rock, the same position as when it assumed its present general character. It is not, in other words, mere boulder or *débris*, transported from its original position. The possible vagueness of the term arises from two sources: First, all our sedimentary rocks have been deposited by water, either as mechanical or as chemical precipitates. While forming as rocks, therefore, they might not be considered as in place. Practically, the distinction arises with regard to the hard "cements" of the ancient river-beds, which are as really rock in place *now* as any other conglomerates. Yet the General Land-Office (see letter of Commissioner Drummond, February 12th, 1872, Copp's *Mining Decisions*, p. 78) has decided that they do not come under that decision; and they are uniformly patented as placers. Secondly, a mass of rock may not be really in place as a whole, because it has been dislocated and moved from its original position; yet if it is a large mass, this dislocation is in common usage not regarded as preventing the application of the term "in place:" and certainly the subordinate parts of such a mass are considered as in place. But the notion conveyed in the above-quoted charge to the jury, that rock in place must be embraced in the general mass, is untenable. Is not the top of a granite mountain in place? Yet it has no rock in place above it, and it may have *débris* upon it. Or suppose a quartz lode, lying wholly within the mass of a slate mountain. It is clearly in place, according to the above definition. Now let the mountain be so affected by frost and rain that the surface is decomposed and removed, until the side of the harder and more resisting quartz lode is exposed. Then, forsooth, the lode, though it has not budged an inch or yielded an ounce of its mass, is no longer in place. This is not an imaginary instance. I have seen such veins. There is a notable instance on Red Mountain, near Silver Peak, Nevada.

A still more ludicrous application of this definition might be made to a case in which a lode crops out like a wall—a case so frequent as to have given rise to the use of the word "ledge" as a synonym for "lode." Here the lode is actually standing in the midst of the *débris* produced by the disintegration of the surrounding surface: and it would not be "in place" according to the above definition! It is unnecessary to argue the matter further; yet I can not forbear to point out that by this definition no part of a mountain nor of the earth's crust can be in place; for if the top layer be not in place because it has no rock in place over it, then the next layer is in the same predicament, and so on.

The worst mischief couched in this definition is indicated by another passage in the charge above quoted, in which the court instructs the jury that the point where the vein is first found in place (proceeding downward from the outcrop) determines its ownership. Taken together with the strict definition already criticised, this instruction opened a door through which any jury that chose to do so might walk away with the rights of locators under the law. For the majority of lode outcrops are more or less weathered and disintegrated, and where the lode is harder than the country-rock, one or both walls are even more affected by decomposition than the lode. Yet miners have no difficulty in determining, after a little exploration, that such lodes are in place; and when not only the lode, but one of its walls also, is in place, the miner is satisfied that he has "found the lode," and proceeds to locate his claim upon it. It is unnecessary cruelty to say to such a locator that, until the other wall is so solid that a jury can not be persuaded that it is *débris*, he has no lode at all; and that the lode begins to exist just beyond his side-line, where his neighbor, who never found it at all, has located a claim on the surface and gone down with a vertical shaft "for luck" or for plunder. I shall recur to this important matter in connection with other decisions.

A further feature of the above-quoted charge requiring comment is the declaration that the contact zone in this case was not a vein unless it was continuously ore-bearing—or, to take the limit fixed by the court, if a barren interval of a hundred feet on a given line should exist in it. The court here overlooked the overwhelming geological probability that in such a case ore connections exist on some other line than the one actually exposed in the workings. In the Eureka-Richmond case, the defendants relied largely upon an alleged barren interval of 900 feet, shown by a certain drift between two ore-bodies. But other evidence at hand in that case convinced the court that the zone containing these bodies was one in origin and character; and came under the comprehensive definition announced in these words of the Eureka decision: "It [the term 'lode' as used in the acts of Congress] includes all deposits of mineral matter found through a mineralized zone or belt coming from the same source, impressed with the same forms, and appearing to have been created by the same processes."

The untenable distinction set up by the court in the Grandview case furnishes its own comment in the paragraph quoted above, in which it is declared that other deposits in the neighborhood may or may not show the same features as the one in suit, but that they are not to influence the decision of the present case. There being but one contact zone known in the neighborhood at the time, the effect of the ruling of the court attaching vital importance to barren intervals in it was, that one locator upon the outcrop, being lucky enough to put down his incline in the axis of an ore-body and to avoid the barren spots, would be held to have a lode, while his next neighbor, being less fortunate, would have no lode, or would lose his right to it, though both were located on the same zone, and neither could have foreseen his fortune. It certainly was not the intent, nor do I think it the necessary construction, of the law, that the acquisition of mining titles should be reduced to such bare gambling as that.

A little later, on motions for preliminary injunctions, in Leadville Mining Company *vs.* Fitzgerald *et al.* (Carbonate-Little Giant case) and Stevens and Leiter *vs.* Murphy *et al.* (Iron-Luella case), Judge Hallett said (as quoted in Carpenter's *Mining Code*, p. 74, and Copp's *United States Mineral Lands*, p. 356—the two versions differ slightly in unessential particulars, and each contains passages not in the other, but the one I cite is substantially in both, except the first sentence, which is omitted by Carpenter):

"Section 2320 of the Revised Statutes refers to veins and lodes in 'rock in place,' and of course no other can be brought within the terms of the act. After careful consideration, it was thought that a vein or lode could not be in place within the meaning of the act, unless it should be within the general mass of the mountain: it must be inclosed by or held within the general mass of fixed and immovable rock. It is not enough to find the vein or lode lying on the top of fixed or immovable rock; for that which is on top is not within, and that which is without the rock in place can not be said to be within it."

Here the court misquotes the statute, which speaks of veins or lodes *of* rock in place, not *in* rock in place. One might suppose this to be a typographical error, but for the argument which seems to be based upon it, and falls to the ground without it. "That which is without the rock in place can not be said to be within it," says the court. We might irreverently reply, "Well, don't say so, then; nobody asked you to." The question of the law is not whether the lode is within or without rock in place, but whether it *is* rock in place, and the lode itself may be in place, though both walls be *débris* or air. The condition of the country-rock is collateral but not controlling evidence as to the character in this respect of the lode.

It is unfortunate that this point has not yet been settled by the United States Supreme Court. Justice Miller of that court, sitting on the second trial of the Grandview case, in July, 1879, charged the jury at considerable length, but passed over this subject lightly, though it had been made so prominent in the charge on the first trial. The charge of Judge Miller was reported in the Denver papers in July, 1879, and from this report I take the following sentences, which comprise all that concerns the meaning of the term "in place":

"And here I want to say that by rock in place, I do not mean merely hard rock, merely quartz rock; but any combination of rock, broken up, mixed with mineral and other things, is rock within the meaning of the statute. . . .

"I give that instruction [that the mineral must be of quartz or other rock], but with the distinct understanding that all this substance, between the porphyry and limestone, that has been explained to you, which contains mineral—I mean which contains ore—is rock in place."

After quoting and adopting the definitions laid down in the Eureka-Richmond case, Judge Miller added:

"I am aided also by my brother Hallett, whose experience is greater than mine in this matter, and who has also given the definition of the word which I propose to read to you as the law: 'In general, it may be said that a lode or vein is a body of mineral or mineral-bearing body of rock within defined boundaries in the general mass of the mountain.'"

It will be seen that these statements do not clearly meet the question, whether rock may be in place without being embraced wholly by other rock in place. On another point, however, the peculiar nature of the contact zone in suit, and the effect on the title to it of interruption in its ore-bearing character, Judge Miller overrules Judge Hallett's previous charge. He says:

"The eighth instruction—'Although the jury believe from the evidence that the plaintiffs are the owners of a vein of quartz rock in place, yet if such vein, on its course toward the land in dispute, be interrupted for a considerable distance, then it ceases to be a lode or vein, so as to give the plaintiffs the right to pursue it in the adjoining land, and in such case the plaintiff can not recover.' I refuse that instruction. In the first place, the evidence is uncontradicted—at least, so little contradicted I would not dare to put that to the jury—that that main incline has metallic ore in it from beginning to end, as far as it has been carried; and in the second place, the words 'considerable distance' do not convey any accurate conception. In some cases, a mile would be a 'considerable distance,' and in some cases, where a life depended on it, half an inch would be considered a considerable distance. . . .

" . . . I say to you further, gentlemen, that the thinness or thickness of the matter in particular places does not affect its being a vein or lode: nor does the fact that it is occasionally found in the

*Read at the Troy Meeting of the American Institute of Mining Engineers, October, 1883.

general course of this vein or chute, in pockets deeper down into the earth or higher up, affect its character as a vein, lode, or ledge. I say to you, further, that a total interruption of the ore-matter, if the contact remains on each side, the limestone and porphyry are still preserved, and the vein of mineral matter is found within a short distance farther on, pursuing that same contact, it is still a part of the same vein. In short, if there is a general and pervading continuance of this mineral matter, with a casual and occasional interruption, but pursuing the same general course, bounded by the same rocky material above and below as far as you can trace that, until it breaks off totally and is interrupted for a very large distance, it is a vein of rock or mineral matter. Now I think you will have no difficulty in applying these definitions, since the evidence here is almost uncontradicted that there is such a sheet of matter as is spoken of. All the witnesses agree that there is a substratum of limestone and a superstratum of porphyry; all agree, even defendant's witnesses, that they come to a point where that contact is so narrow that only a sheet of paper could be got into it, but still it has the well-preserved distinction—the porphyry above, the lime below, and, although in some instances to the south, some to the north, and some occasional spots in the levels, it is stated by the defendant's witnesses that no more vein-matter has been found; yet you must, I think, come to the conclusion that on the whole, and taking the course which this matter is in contact from the line of the plaintiff's location to the line of the defendant's location; taking the course of that large incline shaft, driven by the plaintiffs from where they first discovered it to where it meets the defendants—it is for you to say, from the testimony, not for me to find for you—but I can see no reason why you should not say there is a continuous vein of mineral from the opening shaft, the plaintiff's shaft, to the point where it reaches the Williams shaft. If that is true, if you find that to be true, why, notwithstanding these casual interruptions in various directions, notwithstanding the widening, the narrowing, the deepening, and the shallowness of the vein; notwithstanding it has, in some places, acknowledged diversions down into the ground, still if the miner is able to pursue and has been able to pursue it in the vein; notwithstanding these interruptions, you are to call it a vein and treat it as a vein within the meaning of the act of Congress."

It is evident here that the court did not intend to let the jury accept a gap of a hundred feet as enough to separate "two lodes," both in the same contact-plane, and the lower edge of one and the upper edge of the other constituting the boundaries of the gap. On the other hand, Judge Hallett, who did attach that degree of importance to a barren interval, was careful to say that a mere dike cutting through the vein would not destroy its legal continuity. But in January, 1884, in the case of Louisville Mining Company *vs.* Iron Silver Mining Company, Judge Goddard charged as follows (reported in the Leadville *Daily Herald* of January 20th, 1884):

"You are further instructed, at the request of the plaintiffs, that evidence has been introduced by the plaintiffs showing that, from near the south end of the McKeon level, upon the Iron claim, a porphyry dike exists northeasterly across the claims of the defendant company into the Louisville claim, and some twenty feet to the west of the Louisville shaft. That the said dike cuts upward through the limestone and crosses the plane of contact and into the porphyry hanging-wall at the points along its course, and in so doing it cuts through and entirely obliterates the line of contact between the lime and porphyry. The defendant company has, on the other hand, introduced evidence showing that, even though there should be an intrusion of gray porphyry through the limestone, at defined points along the line at which the plaintiffs claim the dike cut its way, yet nevertheless, it does not cut across the plane of contact, nor does it destroy the continuity of the vein, and that the dike claimed by the plaintiffs' witnesses does not exist. It is for you to determine from this conflicting testimony what the facts are in relation to the alleged dike. You are instructed, that if you believe from the evidence that the dike exists, as claimed by plaintiffs' witnesses, and that it cuts through and destroys the plane of contact, entirely separating the mineral bodies upon the north and south thereof, so that you can not reach the one through the other along the plane of contact, or through or along the crevice, then the ore and vein material, with their inclosing walls to the north and to the south of the said dike, constitute two separate veins or lodes, and the defendant company has no right under the law to go to the south of the said dike by virtue of the possession of the apex of the vein, if such exists within any of their mining claims."

The lot of a Leadville locator is truly not a happy one. If his outcrop is disintegrated, or one of his walls is loose, or his vein pinches, or a dike cuts through it, he has few rights which a jury is bound to respect. The long and short of it is, as one of the counsel in the Louisville case was bold enough to say in the court, that the Leadville people are determined to keep locators within their side-lines; and the rulings of the courts have furnished technical pretexts for carrying out the "common law of the district."

The latest ruling of Judge Hallett that I have seen is contained in his charge to the jury in the case of Iron Silver Mining Company *vs.* W. S. Cheesman *et al.* (Iron-Smuggler case). I do not know that it has been printed. I quote from a manuscript copy furnished to me. The charge was delivered at Denver, June 10th, 1882:

"To determine whether a lode or vein exists, it is necessary to define those terms; and as to that, it is enough to say that a lode or vein is a body of mineral or mineral-bearing rock within defined boundaries in the general mass of the mountain. In this definition the elements are the body of mineral or mineral-bearing rock, and the boundaries. With either of these things well established, very slight evidence may be accepted as to the existence of the other. A body of mineral, or mineral-bearing rock in the general mass of the mountain, so far as it may continue unbroken and without interruption, may be regarded as a lode, whatever the boundaries may be. In the existence of such a body, and to the extent of it, boundaries are implied. On the other hand, with well-defined boundaries, very slight evidence of ore within such boundaries will prove the existence of a lode. Such boundaries constitute a fissure; and if in such a fissure ore is found, although at considerable intervals and in small quantities, it is called a lode or vein."

It is sufficiently evident that under the various definitions and rulings above quoted, the title of the mining locator is not only uncertain at the start, but can never be made certain. It remains always a question for a jury to decide, whether his deposit is a lode or not; and it may be a lode to-day, and cease to be a lode by reason of further developments to-morrow; or one jury may pronounce it a lode, and another not. The experience of the Iron Silver Mining Company at Leadville is an illustration. Of several suits, all turning upon the same geological and legal state of facts, the company won some and lost others. And in the later trials, the company was invariably defeated, because "popular sentiment" was against it. Yet it will be admitted that the use of any law regarding the title to property is, that, having complied with the law, an owner can not afterward be robbed and denied his remedy simply because he is odious. If the jury verdicts at Leadville had been clearly contrary to law, they could have been set aside. But they were not contrary to law. The law, vague or silent on certain points, was construed by the courts in such a way (whether necessarily or not) as to leave the jury great latitude. They had only to choose which witnesses they would believe as to obscure features of the lode, and on any one of half a dozen points they could, at will, decide it to be a lode or no lode.

Moreover, there is, as I have already indicated, a certain argument of equity, not without force, as to the application of the United States law to veins of not more than 15 degrees dip—called "blanket-lodes" in the West. Congress might have ordained some different rules for these lodes. They did constitute under the old German laws a separate class. I do not see that the operation of the law would have been improved by this distinction. It would simply have introduced a new question of fact for witnesses to quarrel over, and a new peril for mining locators. But, however that may be, Congress did not make the distinction: and the attempt to impart it into the administration of the statutes as they stand is vain.* The moral of the whole matter is, that the law itself is at fault and often works or permits substantial hardship, or even injustice. But the only way to treat it is to enforce it or change it. Meanwhile, it must be remembered that hardship is not necessarily injustice. The first locator complying with the law should obtain a clear title to something. A later locator or prospector may want part of that something ever so much; he may think he is going to get it, or has got it; yet his disappointment is not unjust to him, however hard it may be. What is unjust is the requirement of conditions which nobody can understand, or be sure he has fulfilled, and the giving of a title in return which nobody can fully trust; and this injustice will, I fear, remain until the attempt to base extra-lateral rights upon undeveloped and uncertain geological conditions shall be abandoned, and the vertical boundary-planes shall become at once the inviolable limits and the impregnable defenses of the locator's rights.

(TO BE CONTINUED.)

ARSENIC IN IRON.—M. Enverte, at a recent meeting of the Société de l'Industrie Minérale de St. Etienne, stated that in former years the manufacturers of iron rails in France had a good deal of trouble in re-rolling old rails made at Alais, which contained a little arsenic. It was impossible to weld them in the piles, and therefore the engineers at the Terre Noire works hit upon the expedient of working them up in the open-hearth furnace with very good results.

THE GERMAN WIRE EXPORT TRADE IN 1883.—The following figures will show how great is the export trade of Germany in wire and wire nails, the United States being the best customer:

WIRE EXPORTED FROM GERMANY IN 1883.

Country sent to.	Wire. Metric tons.	Wire nails. Metric tons.	Country sent to.	Wire. Metric tons.	Wire nails. Metric tons.
Bremen	3,591	395	Belgium	21,511	2,822
Hamburg	1,608	1,459	Holland	15,794	4,574
Denmark	846	221	Great Britain	44,587	6,270
Norway	295	53	Italy	7,138	1,036
Sweden	684	25	United States	57,036	423
Russia	2,374	257	Other countries	31,396	7,364
Austria	497	1,053			
Switzerland	2,314	121	Total	203,627	28,150
France	13,956	86			

THE HYDRAULICITY OF CEMENTS.—M. Edouard Landrin, who had previously shown that when an intimate mixture, in certain proportions, of pure lime and quartz is raised to a white heat, the resulting cement sets slightly on contact with water, but becomes very hard in the presence of carbonic acid, has shown as the results of some new experiments on the hydraulicity of cements that (1) silicates of lime raised to high temperatures set with difficulty, and in any case do not harden in water, according to M. Frémy's experiments; (2) for the calcination of cements to exert a maximum influence on the setting, in connection with water, of the compound obtained, the process must be carried sufficiently far for the lime to act on the silica so as to transform it into hydraulic silica and not into fused silica; and (3) carbonic acid is an indispensable factor in the setting of siliceous cements, inasmuch as it is this substance that ultimately brings about their hardening.

TESTS OF DELTA METAL.—The following are the results of tests made at the Imperial Testing-Works in Germany, by order of the Deutsche Delta-Metall Gesellschaft, Alexander Dick & Co., Düsseldorf. The elasticity of Delta metal per square inch was proved at 31,757 pounds, equal to 14·1 tons; the commencement of permanent set per square inch was 49,757 pounds, equal to 22·2 tons; the breaking strain per square inch was 80,658 pounds, equal to 37·34 tons; the elongation was 12·9 per cent. and contraction of area of fracture 17·4 per cent. The crushing test, by a stress of 22,000 pounds, gave 0·80 per cent; 44,000 pounds, 0·33 per cent; 66,000 pounds, 2·03 per cent; 77,000 pounds, 2·71 per cent; 88,000 pounds, 3·87 per cent; 99,000 pounds, 5·77 per cent; 110,000 pounds, 8·20 per cent; 121,000 pounds, 10·76 per cent; and 132,000 pounds, 13·41 per cent. The ultimate stress per square inch was 135,700 pounds, equal to 60·5 tons. Some bearings have been recently stamped from this metal for one of the great English railroads. They are struck at a dull-red heat, and come out, with fine sharp edges, ready for immediate use, and are free from blow-holes and flaws, and possess the strength of Bessemer steel. This latest development shows the growing interest that is taken in Delta by those who use vast quantities of metal.

* "It can not be presumed that Congress intended to prescribe a rule for one class of fissures, leaving others unprovided for. As those acts were apparently intended for all lodes, it is not for the courts to say that they shall be confined to lodes which have a certain position in the earth."—Judge Hallett to the Public Lands Commission. *Report*, p. 270.

THE SAFETY-LAMP COMPETITION.

We regret to learn that the competition for the prize of £500, offered by Mr. Ellis Lever, of Culcheth Hall, Cheshire, for a portable safety-lamp for miners, that should be absolutely safe under all conditions—that is to say, which would not under any circumstances cause an explosion of fire-damp—has proved a failure. The adjudicators—who were Mr. Thomas Burt, M.P., nominated by the central board of the Miners' National Union; Prof. Grylls Adams, by the council of the Royal Society; Sir Frederick Abel, by the council of the Society of Arts; and Prof. Silvanus Thompson, by Mr. Lever—declare themselves unable to make an award. They say in their report: "The adjudicators had to examine 108 lamps. Of these, 4 were electric lamps, and 104 oil lamps, of which a few were designed to burn mineral oils. With respect to the electric lamps, there was not one which fulfilled, or approached fulfillment of, the conditions of the award. All the lamps that fulfilled the preliminary requirements were submitted to a series of experiments of progressively increasing severity. These experiments, based on the experience gained by the royal commission, and by experiments instituted by other bodies in this country, were calculated to fulfill even exceptional conditions to which lamps may be exposed in actual practice. While there was a considerable number of lamps that behaved satisfactorily under the normal conditions existing in mine workings, the number was reduced to very few as the extreme tests were reached. Of these, there is no lamp that perfectly fulfills the whole of the conditions enumerated, and the adjudicators are consequently unable to make the award to any one of the lamps submitted." The adjudicators add, however, that among the best there are two which they regard as deserving of special mention, namely, the Marsaut lamp, with three gauzes, which most nearly fulfilled the conditions, and the lamp of Mr. William Morgan, of Pontypridd, South Wales, which presents several good features of marked originality.

HYDRAULIC PUMPING OF WATER WITH KÖRTING EJECTOR.—At the Dahlbusch colliery, Gelsenkirchen, Germany, a Körting ejector is used for lifting 125 liters of water a minute from a new level started 30 meters below the deepest force-pump. The peculiarity of the arrangement is, that water under pressure is used instead of steam. The apparatus is mounted in the shaft, and is connected with the discharge-pipe of the lowest force-pump by a 39-millimeter pipe. The ejector has a 124-millimeter discharge-pipe leading to the pump-tank 30 meters above it. When using from 60 to 90 liters of water under a pressure of 14 atmospheres, the apparatus will lift 370 liters of water.

FURNACE, MILL, AND FACTORY.

The bailers and heaters at the La Belle mill, Wheeling, West Va., were notified by letter that their services at the mill would be dispensed with. This is caused by the closing down of the forge department, due to changing from iron to steel in the manufacture of nails. The steel blowers are obtained from Pittsburg.

Of sixteen blast-furnaces in Alleghany County, Pa., seven only are in blast, and all the others except one are lighted up and are simply waiting for a better market or rather for better prices for pig-iron.

Oliver Brothers & Phillips, Pittsburg, have turned out 150 tons of heavy plate iron for the English and Scotch capitalists now building two large blast-furnaces at Dayton, Tennessee. This order is larger than any of the kind that has been given in the city for at least two years. The steel rolls at the upper Southside mill of this firm were started on double turn last week, with a prospect of continuing so for over six months. There is an order for 9000 tons of iron for 43 inch water pipe for a hydraulic mining company in California, of which part is made in this mill and part in Danville, Pa.

Newark, N. J., will probably contract for large sewage-pumping machinery. The present method of disposing of the sewage by drains into the bay does not prove satisfactory.

The Hendey & Meyer Engineering Company, Denver, Colo., is to manufacture the 100 horse-power engine that is to drive the machinery at the Denver Exhibition.

A Huntingdon correspondent of the Philadelphia *Times*, says: The new furnace of the Everett Iron Company, on the Huntingdon & Broad Top Railroad, south of Huntingdon, is completed and ready to be put in blast. Since the company was organized, in October, 1882, it has made rapid progress with its improvements. Work was begun but little more than eighteen months ago, and in that time it has built one of the largest and best furnaces in the State, made a narrow-gauge railroad to its iron and coal mines, put up one hundred and ten coke-ovens, erected residences for its superintendent and master-mechanic and forty-five double dwellings for its operatives, begun mining operations on a large scale, and has had a large supply of material, iron ore, limestone, and coke delivered at the furnace.

The Southwest Lead and Zinc Smelting Company is one of the largest industries in Rich Hill, Mo. The principal stockholders of the company are Jay Gould, of New York; O. H. Pitcher, President, Joplin, Mo.; and E. H. Brown, Rich Hill. The works were erected in the summer of 1881 at a cost of $250,000. The company owns, says the Rich Hill *Mining Review*, thirteen acres of ground to the north of Rich Hill, just outside the city limits, and has especial railroad conveniences for hauling coal and ore. The capacity of the works is 15,000 pounds of spelter a day, and furnishes employment to about 75 men during the entire year. A large eighty horse-power Corliss engine runs all the necessary machinery, and at the remarkably low cost of forty cents a day for fuel, the company using mostly slack coal for fuel, and securing the water used for its purpose from the Rich Hill system of water-works, a connection having been made with the city mains during the past year. The ore used in these smelters is mostly brought from Joplin, Carterville, Webb City, and other points in Jasper County, Missouri, over the Lexington & Southern branch of the Missouri Pacific Railroad. The company also has a number of coke-ovens and manufactures its own coke, a large amount being used in the process of smelting. The crushing machinery, rollers, elevators, retorts, gas-producers, and calciners are of the most improved pattern.

The Jefferson Iron-Works Company, Steubenville, Ohio, has begun to manufacture a trial lot of steel nails, buying enough steel blooms in Pittsburg to make about 350 kegs of nails on a trial test. The blooms were rolled into nail plate in the nail rolls and came out beautifully, notwithstanding the predictions of the workmen that the machinery would give way. The nails cut as easily as if of iron, and came out as smooth and perfect as could be, there being not the least ragged edge, as is the case with iron nails.

One stove foundry is idle at Rochester, N. Y., and the majority of the machinery molders are out of employment.

The iron-works of Brown, Bonnell & Co., at Youngstown, Ohio, have resumed work, double turn. A steady run of three months is already assured, and there is every prospect of permanency. The starting of the mills gives color to the rumor that Herbert Ayer will reassume control. The hearing of the suit to dissolve the corporation of Brown, Bonnell & Co. comes up next week, and Crawford will appear for Ayer. A bitter and long-continued legal battle is certain. Paul Wick, banker, and one of the leading creditors, said to-day that Ayer can not regain control of Brown, Bonnell & Co.'s works except by lifting the indebtedness of over $1,000,000. This he was certain Mr. Ayer was in no position to do.

The Lagrange iron furnace, located in Stewart County, Tennessee, has recently been rebuilt and was put in blast on July 10th. It was first built in 1832, and was again rebuilt in 1880. When it was rebuilt this year, it was placed on the old foundation, which was, however, raised six feet. It was placed on five columns, 15 feet high, and has five tuyeres. The stack is 65 feet high, bosh 20 feet 4 inches high, and 12 feet in diameter, and the hearth is 6 by 6 feet. The stack is furnished with a Weimer patent charger on top, and has a down-take 54 inches in diameter, and at the bottom the down-take has a dust-catcher 13 feet 6 inches long, 9 feet high, 54 inches wide, with two bridge-walls. The furnace has two ovens, two sets of boilers, and two large engines.

New iron-works have just been built and opened by Rawson & Morrison on Main street, Cambridgeport, Mass., just across the West Boston Bridge. Mr. George W. Rawson, formerly of Rawson & Hittinger, has been for the past seven years with Kendall & Roberts as superintendent and designer. The new shop is 125 by 42 feet, two stories high, and is stocked with 12 lathes, 4 drills from P. Blaisdell & Co., of Worcester, 5 planers, punches, presses, and hammer, for the manufacture of stationary, marine, portable hoisting, and ship engines, hydraulic presses, stone-crushers, shafting, marine boilers, tanks, etc.

A huge drum, intended for one of the Philadelphia & Reading Company's mines, was cast a short time since at Pottsville. The drum will be 14 feet long, 19 feet in diameter at the center, and 12½ feet at the ends when put together. It took eight men five weeks to prepare the mold. It was cast in two parts, each weighing 32,000 pounds, taking 37,000 pounds of molten iron, the extra iron going for stays and wastage. One minute and ten seconds was all the time required to pour out the whole 37,000 pounds.

The Link-Belt Machinery Company has obtained control of a new friction-clutch that it is placing on the market. This company is finishing up a large coal-conveyor to go to Mexico, and another one for New York.

The iron steamship City of Frostburg, built by the American Steamship Company for the Consolidation Coal Company, has been completed, and left Philadelphia. She is the second of the line built under the supervision of Commander Gorringe. The first of the colliers, the Charles F. Mayer, has made a number of successful trips under the command of Capt. D. M. Anthony. She has proved herself a very fast boat.

The Colorado Coal and Iron Company has purchased a bar and guide mill at Ogden, Utah, evidently a part of the machinery of the Ogden Iron-Works, which was never completed. The machinery is now shipping to Pueblo. It will be set-up at the Bessemer steel-works, and used in rolling merchant iron.

Titusville, Pa., is to have new steel and iron-works, the Eames Petroleum Iron-Works plant having been purchased by Burgess, Garrett & Co. It is not their intention to manufacture the ordinary grades of iron and steel, but special grades of both. They will also make a self hardening steel equal in quality to the celebrated Mushet steel. This iron and steel is all made by an entirely new process, which is a secret with Mr. Burgess. The company will rearrange the plant at the Eames Iron-Works, increase the furnace capacity, and add a large quantity of new machinery. Work will be commenced immediately, but it will require a month or six weeks and a large expenditure to put the works in condition for business.

Work on one of the steel steamships building at Wyandotte for the Western Transit Line is so far forward that she will be launched in about ten days. About 500 men are employed in the yard, and work is rushed forward with all possible speed. The second boat will be launched about September 15th.

The Cincinnati Corrugating Company, Ohio, manufacturer of corrugated sheet-iron, has bought out the entire interest, fixtures, franchises, machinery, and good-will of the well-known New York Iron Roofing and Paint-Works, manufacturers of the selt-capping and packed iron roofing, patent stone-faced canvas roofing, and obelisk metallic paint. The Cincinnati Corrugating Company, the purchaser, claims that this extension of its manufactures makes it the largest manufacturer of metallic roofing and siding in the United States.

Mr. W. F. Durfee, the well-known civil and mechanical engineer, of Bridgeport, Connecticut, has been appointed the agent in this country for the introduce tion of the Gjers soaking-pit.

The recent improvements that were making at the Lucy blast-furnaces, Pittsburg, necessitate the use of another engine. The old engine-house, containing six engines, is now enlarging. The new engine is to be built at the Allis shops in Milwaukee, Wisconsin, and is to be one of the finest, costliest, and largest blast-furnace stationary engines in the country.

LABOR AND WAGES.

The steamer Jack Gumbert was chartered by the striking coal miners, at Pittsburg, Pa., of the first, second, and third pools, and was to start from Elizabeth on August 11th for the fourth pool district. Several hundred miners, with provisions for a week, were to accompany the boat and endeavor to persuade the working miners to come out for the district price.

At Tombstone, Arizona, on August 9th, about seventy members of the Miners' Union, who are on a strike, attacked the Grand Central mine. One hundred shots were exchanged, but nobody was hurt. The attacking party was repulsed. No arrests were made.

RAILROAD NEWS.

Articles of incorporation have been filed in the office of Territorial Secretary Tooker, for the Butte & Atlantic Railroad Company. The incorporators are William A. Clark, Charles X. Larabie, Samuel N. Keith, Daniel J. Welch, Noah Armstrong, Henry Elling, B. F. White, John T. Conner, Francis W. H. Medhurst, Phil Shenan, Lee W. Foster, George W. Stapleton, and James R. Clark. The object for which the company is organized is to construct, conduct, maintain, and own a standard gauge railroad from Gallatin station on the Northern Pacific Railroad in Gallatin County, Montana, up the Jefferson River, through the Jefferson Cañon, to a point near the junction of Pipestone Creek with the Jefferson River in Jefferson County; thence up Pipestone Creek to the summit of the main range of the Rocky Mountains; thence by the nearest and most practicable route to Butte City. The company also proposes to build a standard gauge branch line diverging from the main line near the mouth of Pipestone Creek, and running up Jefferson and Beaverhead rivers by the most practicable route, to Dillon. A second branch will diverge from the last-named branch at or near Twin Bridges, Madison County, and running thence up the Ruby River Valley, proceed by the nearest and most practicable route to Virginia City. The amount of capital stock is placed at $3,000,000.

COAL TRADE NOTES.

COLORADO.

The *Silver Record* says of the new strike of coal at Crested Butte: The Colorado Coal and Iron Company has for a long time been prospecting to find the continuation of the coal veins into the mountain southerly from the present workings. Southeast of the mine, lies a level mesa of perhaps eighty acres. On the west of this, the mountain rises, for several hundred feet, at an angle of not less than forty degrees. The northern slope has a very heavy covering of gravel and boulders, and supports a luxurious growth of spruce timber. Along the base of this mountain, numerous shafts have been sunk in hopes of finding the coal. This spring, a shaft was started just where the ground begins to rise from the mesa. At a depth of 30 feet, something over 4 feet of soft coal was struck; on this, an incline was run 30 feet, the coal continually improving in quality and increasing in thickness, so that now there are over 5 feet of as fine burning and coking coal as there is in the old works. This vein is not far from 400 feet above the old vein. An easy incline can be run in, enabling the loaded cars to be drawn out by mules and dumped into the cars for shipment, or into the coke-ovens, of which a great number will speedily be rebuilt on the ground. West of where the new tracks and ovens will be built, the company owns a fine tract of level bench land, upon which it will build a large number of cottages for the use of the miners. At least 500 tons of coal and coke will be shipped a day; for the excellent qualities of the Crested Butte coal are fast driving all competitors from the market.

The Anthracite Mesa Coal Mining Company, whose breaker and mine are located a few miles above Crested Butte, was compelled, on account of the heavy snows, to close down early in February, and has done very little work since that time. However, from January 1st to July 1st, it has shipped 333 cars of coal, equal to three thousand tons.

MISSOURI.

A pamphlet to be issued by the Board of Trade says: Among the most important resources of Bates County may be mentioned its wonderful coal-fields surrounding Rich Hill. The whole area of southern Bates and northern Vernon counties is known to rest on a bed of coal. The vein now worked ranges from three and a half to six and a half feet in thickness, and is said to be the second vein, the first vein cropping out here and there on the higher land only. In many portions of this vast coal area, estimated at 560,000 acres, this second vein crops out along the ravines, and is found, in some instances, just beneath the plow's depth, and is worked by stripping. In other places, it is drifted and mined at a depth of from forty to seventy feet. The third bed of coal has not yet been worked, though penetrated in prospecting, and is reported to be from three to nine feet in thickness, and found at a depth of from 150 to 354 feet. Geological investigation strengthens the belief that a heavy vein of coal covers almost the entire area of southern Bates at a depth of from 350 to 500 feet, which of course will not be utilized while the present heavy veins so near the surface remain adequate to all demands. The Rich Hill Coal Company, Keith & Perry Coal Company, Hopkins & Jourdin Coal Company, and the Carbon Center Coal Company, produce most of the coal at the present time for commercial purposes.

OHIO.

For a number of years, the coal for the National Soldiers' Home, at Dayton, Ohio, has been furnished by Ohio men. This year, there were over twenty bids, the contract being awarded to the Pan-Handle coal operators, as follows: Willow Grove Mining Company, 4000 tons at $2.78; Mansfield Coal and Coke Company, 3000 tons at $2.84; Fort Pitt Coal Company, 3000 tons at $2.87. A contract for 1000 tons of gas-coal at $2.95 was also awarded.

PENNSYLVANIA.

ANTHRACITE.

Contractor McEachen has finished drilling the second hole at East Franklin.

Great improvements are making at old Lincoln colliery, Tremont. The beaker is entirely remodeling, and a new slope about four hundred yards deep sinking. It is thought the old time shipments will soon be made again.

The Shamokin *Times* reports work begun at the new shaft that is to be put down on the old Martin tract along the line of the Carbon Run Railroad. The proving of the veins has been completed. Holes have been drilled to the depth of 1535 feet, and the coal bored through is of sufficient thickness to warrant the parties in going ahead. It will not be many months before a breaker will be erected. The new colliery will furnish employment to a large number of men.

Specimens of the Mammoth coal vein that the Reading Company recently tapped at Pottsville have been received at the company's office in Philadelphia. The coal is pronounced by all who have examined it to be of superior quality, being what is known as hard white ash, the best anthracite mined. For about ten years, the Reading has been seeking to tap the Mammoth vein at Pottsville, and thousands of dollars have been spent in the attempt. The spot selected is a few miles north of Pottsville, where there is a natural basin, between Sharp Mountain and Broad Mountain. A shaft was started in the center of this basin, and work was begun vigorously. By the latter part of 1876, the shaft had penetrated the Primrose vein, 1592 feet below the surface. Here it was decided to stop the shaft and bore a hole so work was resumed, and after going 410 feet farther, the Mammoth vein was struck 2002 feet below the surface of the ground. The mining engineers considered it best to cut a lateral from the foot of the shaft, where the Primrose vein was found, westward, as it was thought the Mammoth curved upward and would be less expensive to mine through a gangway than to extend the shaft farther downward. Accordingly, a force of men was set to work cutting a tunnel, but, after going several hundred feet and failing to reach the vein, it was decided to abandon the tunnel for the time and seek the Mammoth nearer the surface. Another westward tunnel was cut from a point in the main shaft 835 feet from the surface, when the Diamond vein was found. For months, the miners have been toiling at this undertaking, and the long-sought vein has been found at last. It is twelve feet thick. Preparations are making to develop the mine at once, which it is expected will prove one of the largest and most profitable possessed by the Reading.

BITUMINOUS.

The shipments of the Youghiogheny River Coal Company amounted to 25,000 tons from its three mines in Westmoreland County last month. On account of a lack of accommodation in the way of transportation, the amount mined was diminished. The employés number 750.

The coal of Clearfield County has attained a remarkably high reputation for its excellence for rolling-mill purposes, steam, coke, and for gas use. As a consequence, prospecting for coal has been actively prosecuted for a number of years past. The extent of the workings, amount of capital invested, shipments, and number of men employed, are causing Clearfield to take rank in the lead of bituminous coal producers in the State. The business, notwithstanding the general depression elsewhere, has exhibited a steady increase each year in this county. The Pennsylvania road has found it necessary to build new branches to accommodate the growing trade, while the Alleghany Valley and Rochester & Pittsburg roads are on an average taxed to their full capacity. It would seem that in Clearfield County about all the bituminous basins are worked separately in cases, and combined in others. The veins vary in different localities, in thickness, but six feet is a fair average. Large tracts are still undeveloped, among them that of Mr. John Du Bois. A large proportion of this coal goes to supply Canadian railroads. That used on the Canadian Pacific is transported from Buffalo to Port Arthur, on the northern shore of Lake Superior, and thence distributed along the line westward for fully fifteen hundred miles. Coal mined here is used in locomotives running through the passes of the Rocky Mountains. The lake trade is also largely supplied from this source.

Bell, Lewis & Yates, of Buffalo, New York, have invested largely in these fields, owning about 3000 acres in Du Bois and its immediate vicinity. The firm began operations November, 1876. The total shipment of 1877 was 60,000 tons; average yearly shipments since, 300,000 tons; the shipments for 1884 will probably exceed 400,000 tons. The vein is six and a half feet. It is a water-level drift, and is worked on the double-head system. It is ventilated by a six-foot Murphy fan, having a capacity of 150,000 cubic feet a minute. The present output is about 2000 tons a day. This is shipped directly from the mines by the Rochester & Pittsburg Railroad. These mines give employment to about 500 miners and other employés. A specialty is made in the line of washed smithing coal, several grades being furnished to meet the demands of heavy or light work. The company has a block of 54 coke-ovens in operation that produce from fine washed coal an excellent quality of coke.

COKE.

The Mount Braddock Coke-Works, near Uniontown, Pa., were to be sold on August 8th by Mr. George H. Anderson, assignee of the firm of A. O. Tintsman & Co. They were bid to something over $1300, and the sale was then postponed to August 8th. The tract comprises forty acres of surface land, 370 acres of coal. There are 130 ovens, forty dwelling-houses, and a store-room on the ground. The cost of the plant was something over $200,000.

Beeson's works are paying 28 cents a wagon; Lemont Furnace, when running, 27 cents; but it is now closed down with the exception of a few heading men. Youngstown worked four days this week, paying 27½ cents a wagon.

The Percy works, at Frost station, are running slowly—one and two cars a day.

The Connellsville *Courier* reports the condition of the coke trade as follows:

Not for years has the coke trade been so dull as it is at present. Nearly one half of the ovens are smokeless, and the remainder are again dropping off one day in the week. But prices remain as firm as a rock at $1.20 a ton on board cars at ovens. Of the 9820 ovens in the region, 3841 are dead. The latter include the 3148 idle percentage of the pool. 324 furnace ovens, and those famous 369 ovens that have been cold for a year past. The suggestion made in the *Courier* recently, that some of the operators were standing in their own light by lying off so many days in the week, was received with favor by them, and last week a shut-down of 45 per cent was ordered, and the men were given steady work, the two holidays being eliminated By this means, they were enabled to make cheaper coke and give their men more steady employment. But even this extensive shut-down was not enough to control the market, the daily output being about 200 cars more than the demand. An order followed this week to lay off one day, and yesterday the region was idle again. It is anticipated that even this restriction will not confine the output within the bounds of demand, and that a still further restriction will be found necessary. If this be so, the works will perhaps lie idle another day rather than put out any more ovens. As an indication of the flatness of the market, it might be mentioned that the shipments last month were over 5000 cars less than those for May.

Of the pool ovens, the following works are running partially full: Fairchance, Oliphant, Kyle, Percy, Ferguson, Colvin, Anchor, Uniondale, Trotter, Leisenring, West Leisenring, Davidson, Coalbrook, Franklin, Clinton, Home, Dexter, Painter, Diamond, Buckeye, Mullen, Boyle, Morewood, Alice, Bessemer, Rising Sun, West Overton, Southwest, Dillinger, Union, Mayfield, Donnelly, Jimtown, Cora, Valley, Summit, Eagle, Foundry, Morgan, Henry Clay, and Frick. The following are idle on account of the percentage restriction: Star, Standard, Warden, Enterprise, and Sterling. Out of the pool, Moyer, Fort Hill, Jackson, Spring Grove, Redstone, Leith, Hill Farm, Morrell, Wheeler, Tyrone, and Washington are all running full. Clarissa was idle last week for want of water, the well from which the supply is drawn having failed; but the recent rains have remedied this, and the works are going again. Emma still runs 24 out of her 36 ovens; Stewart, 80 out of 120; Lemont, 100 out of 152; Youngstown, 120 out of 240; Charlotte and Kifer are dead on account of the blowing out of the furnace; Mount Braddock, Mahoning, Pennsville, and Fountain are still rusting in seeming hopeless idleness.

NATURAL GAS.

Dilworth Brothers opened a large vein of gas at their new well at Homewood, Pittsburg, at a depth of 1525 feet.

George Westinghouse, representing the Philadelphia Natural Gas Company, purchased at Pittsburg, August 10th, a leasehold of four fifths of all the natural gas territory in Western Pennsylvania. The sale includes the Butler and Tarentum fields and five farms in the vicinity of Homewood, Pittsburg. The purchase was made from and through J. M. Guffey, and involves an area of 17,000 acres. The terms of the sale are withheld.

WEST VIRGINIA.

Senator Don Cameron and Senator Kenna, of West Virginia, with several Pennsylvania capitalists and a corps of surveyors, have returned from Elk River, where Cameron owns large tracts of coal and timber land. The road is surveyed to Charleston, West Va., and will be built at once.

GENERAL MINING NEWS.

ARIZONA.

DETROIT COPPER.—The company blew out its furnaces on the night of the 22d ult., and the work of tearing down the buildings connected with them is going on. Most of the buildings will again be put up at Morenci, where the new plant is nearing completion.

CALIFORNIA.

BIRD'S-EYE CREEK.—The directors' report prepared for presentation at the meeting on August 12th, states that during the past year 5941 ounces of gold have been obtained, realizing £23,509 9s., at a cost of £15,417 9s. 11d., leaving a profit of £8091 19s. 1d.; of this profit, £4116 3s. 10d. have been expended on the completion of the Uncle Sam works, leaving a net balance of £3975 15s. 3d. This outlay of £4116 3s. 10d. on the Uncle Sam claim represents dividends amounting to 5s. a share. A dividend of 1s. a share was paid in December last, and another of 2s. has been paid since the closing of the accounts. In the present position of hydraulic mining in California, the proprietors will share with the directors the satisfaction they express that the profits have been devoted to the development of a "drift" claim, a system of working which is not, it is believed, likely to be interfered with.

INYO COUNTY.

DEFIANCE FURNACE.—At the Defiance furnace, six tons of bullion are turned out daily, being a yield of twenty per cent from the ore smelted. The bullion is all high grade. The mine and furnace are the property of Hon. P. Reddy.

MODOCK FURNACE.—The Modock mine and furnace at Lookout are turning out bullion steadily. There is a large quantity of bullion at the railroad ready for transportation to San Francisco.

POLITA.—William Irwin and Tom Luther, formerly of Bodie, have purchased a three-fifths interest in the famous Polita mine, opposite Bishop Creek, and have also rented the Hawley mill, where they will crush several hundred tons of ore, and ascertain the best method of reducing it. They will then probably put up a mill near the mine. The C. & C. Railroad Company is putting in a side-track at a convenient point for the transportation of ore, and will also probably build a side-track to the Hawley mill.

COLORADO.

BOULDER COUNTY.

MELVINA.—A controlling interest in this once celebrated mine has been sold to the Scottish Colorado Mining and Smelting Company.

HINSDALE COUNTY.

BELLE OF THE WEST.—The Ocean Wave mill is overhauling and a good portion of the old machinery is coming out. This is to be the Belle of the West concentrator, and works similar to those at the Ure mine will be put in. Water will be the power used, and the only machinery in the mill that will be used will be one set of rolls and the crusher; the rest will all be new, and it will be brought in as soon as possible.

LAKE COUNTY.

The Leadville *Chronicle* has the following July review of Leadville mining matters:

The first month of the second semester of the year 1884 has shown quite an improvement in mining as well as smelting matters at Leadville. There are some prominent mines that remain affected by the dullness of the lead market, and are closed down, at least so far as the production of the low-grade ores is concerned. There is little expectation here of an early recovery of the lead market in the East, and the producers of the high-grade lead ores care little whether it does or not, so long as the demand for their product will secure them the present prices, which, according to the excess of iron, are about from 30 to 35 cents per unit for from 30 to 35 per cent ore, and from 35 to 45 for ore that contains from 35 to 50 per cent of metallic lead. Smelting charges from $5½ to $8. Siliceous lead ores from $8½ to $10; dry ores, from $11.75 to $13; middling refractory and siliceous, from $16 to $18—all of the above 5 per cent off for silver; very refractory, an average of from $28 to $30 charges and 10 per cent off. Large quantities of refractory ores are now treated at our smelting-works, partly first roasted, then re-roasting of the matte. It keeps the smelters busy and allows the accumulation of good smelting ores. There is a great probability that most of our furnaces will be in blast in August. From sixteen to eighteen have been kept running this month. Battle Mountain has been shipping considerable, but by no means as it should and could. Natural obstacles have been reducing the output. Sugar Loaf and Frying Pan are producing about 15 tons of 400 ounce ore and over, a day. Sow Belly promises to develop some mines this year. Excellent ore is coming in from Aspen. In Granite, the golden small-pox has broken out again. South Half Moon is shipping steadily. No change of importance to be reported on main Fryer. East Fryer is doing fairly, with a new development on the north end of the Big Pittsburg. On Yankee Hill, the Forest City leads the van of all the mines of the camp. Energetic work with only passable results on the Queen Consolidated. Carbonate Hill is an enormous lead producer. The Maid of Erin, Clontarf, and Brookland are alone shipping about 150 tons a day. The apex mines are rather behind this month. On Iron Hill, the lessees on the apex mines have been shipping moderately an improved grade of ore. The Argentine is slackening just at present. The Louisville is hoisting ore through the Colorado No. 2. No shipments from the Colorado No. 2 and Rubie. The Sellers and Minnie are temporizing, the Moyer developing. On Rock Hill, the output has decreased, with the exception of the Crown Point-Pinacle, which is gaining. Printer Boy Hill is holding its own with a slight advance. More outlying mines are very slow as yet. The Dyer has begun shipping. Little Ellen Hill is producing largely.

The total output of Leadville, including shipments from Battle Mountain and Ten Mile and other receipts by wagon and rail—from 120 to 150 tons—is about 1100 tons, of which 500 tons is lead, running from 30 to 50 per cent. The silver grade of the total has considerably increased. The last five months of the year will probably maintain this standard.

ADLAIDE.—The properties of the Terrible Mining Company, comprising the Adlaide and other mines, are credited with doing fairly well. During the month of July, the product must have reached 175 tons of ore, netting above smelting charges about thirty-five dollars per ton. The properties are worked by leasers, who employ about forty men.

AMIE.—The territory surrounding Amie No. 1 shaft is worked under a lease by the Holden Brothers, who are taking out considerable good ore. They report their shipments at from six to eight tons a day, consisting of ore containing from 25 to 60 ounces in silver to the ton, and from 35 to 40 per cent in lead. Several other portions of the Amie mine are also worked under the lease system, without, however, producing very much.

BIG CHIEF.—The Leadville *Herald* has the following on the recent opening of the second contract: The Big Chief shaft has a depth of about 605 feet. At 468 feet, the shaft pierced the regular porphyry-limestone contact, and disclosed some very fine sand ore. The mineral body at this level is a portion of the large chute of ore passing from the Catalpa, Evening and Morning Stars, into the Big Chief claim, and continuing in a northeasterly course into the Maid of Erin and Adams properties. After working out the ore-body in the immediate vicinity of the shaft, it became necessary to sink the shaft to greater depth, in order to catch the vein on its eastward dip. The inclination of the vein is about twenty degrees from the horizon, and the shaft was sunk quite a little distance, and levels driven, opening new ore-bodies to the eastward. This work was mostly done by Mr. Neils Larsen. More recently, however, the management of the property passed into the hands of Mr. J. McCombe, who, after doing some other work, resumed the sinking of the shaft, which, since leaving the upper contact, continued in limestone, generally considerably decomposed, and occasionally showing iron stains. This work progressed without promising any thing definite, until a week or so ago, when, after having passed through 125 feet of limestone, the shaft broke into a streak of disintegrated porphyry and clay. This material contained some iron and other evidences of the close proximity of mineral. After the porphyry streak had been penetrated a few feet, an assay was made of the material, returning four ounces in silver to the ton and eight per cent in lead. A few feet farther on, iron was encountered that returned six ounces in silver to the ton; and at nine feet below the limestone, fine galena and sand carbonates were met with. The shaft was sunk about twenty inches into this ore-body, when the increased flow of water enforced a suspension of work until pumping machinery could be provided. A number of assays were made on the mineral, returning on the galena ore, from 63 to 173 ounces in silver to the ton, and from 65 to 70 per cent in lead, and on the sand ore, 63 ounces in silver and 54 per cent in lead. Mr. McCombe is arranging for a new pumping plant of increased capacity, and is also preparing to remodel and enlarge the present shaft-house. To effect the improvements and additions in contemplation, will occupy about two months, and it is expected that by the middle of October the Big Chief mine will be producing ore from the lower mineral zone.

DOLPHIN.—The owners of this mine, on Fryer Hill, have begun the sinking of a new shaft about 150 feet southwest of the main working-shaft on the claim.

LITTLE PITTSBURG.—The company has made some improvements lately at the No. 6 Little Pittsburg shaft. The water, which for several weeks past has interfered with work on the lower level, has just been brought under control, and a double system of pumps insures the mine against a repetition of the past difficulties. The lower drift, running to the northwest, is in about 175 feet, and will now be advanced rapidly. The drift is penetrating a mass of iron, showing occasional pockets and seams of good ore. Near the face of the drift, a rise is to be started immediately, and will be carried to the top of the iron body for the purpose of more thorough exploration.

OURAY COUNTY.

ARGENTA FALLS.—Under the management of J. B. Roberts, the old Ocean Wave smelter is now transforming into a concentrator for the treatment of Belle of the West ores. It is to be a 30-ton plant, similar in construction to the mill of the Crookes Company at the Ulé.

PASADENA.—The first installment of machinery for the erection of the new Pasadena smelter at Rico has arrived in that camp, and the work of erection will shortly begin. The Pasadena Company, while not employing exactly a new process, will use one specially modified, and expects to treat the ores of the district at extremely low rates.

YANKEE GIRL.—About ten days ago, a drift was started from the bottom of the main shaft, which is now about 230 feet under the surface and 120 feet under the engine room, and was run 20 feet in a southwest direction, when the whole breast of the drift came in in solid ore. The ore is silver glance and brittle silver, and has come in solid and fully two feet in width. There are also four feet of rich ore adjoining this streak, making an ore-body six feet in width. The whole Yankee Girl force is now working in mineral, and a great deal of ore is accumulating in the ore-house, although shipments are made from day to day. Early this week, the value of the ore-shipments for two days amounted to $15,000.

PARK COUNTY.

The Fairplay *Flume* says: It is announced semi-officially, that Messrs. Georg D. Roberts, Elisha Gray, Professor Holden, and other men of wealth will take hold not only in the development of the Sovereign mine, at Montgomery, but also in the development of the acreage of placer ground that has been lying idle all along the Platte from Alma to Montgomery. The purchase of the Hathaway & Mills and Reservoir placer from C. G. Hathaway, and the Brunk mill-site, as well as other smaller placer interests, for neat sums, is nearly negotiated, and the owners of the Cummins placer will thus consolidate about five miles of placer ground on the Platte under their control. It is stated that a hundred ton concentrator will be ordered at once, and that rock-drills and electric lighting plant will be employed.

SUMMIT COUNTY.

The Moody gold strike at Breckenridge, consisting of two claims, has been sold to D. H. Moffat, of the First National Bank of Denver. The price paid is as yet unknown. Mr. Moffat has taken possession of the mine and put a force of men at work. Negotiations for other valuable property on Gibson Hill are making by both Denver and Leadville capitalists. Another rich strike was made by the Ford Brothers. This strike is situated a full half-mile from the Moody vein, and has caused great excitement, as single pans of dirt turn out such amazing quantities of gold.

WARRIOR'S MARK.—Colonel James A. Fryer, Cecil C. Morgan, and Mr. John M Denison, a Baltimore capitalist, are now the principal owners in the reorganized Warrior's Mark Mining Company. The developing and proving up of the value of this property have justified the enlargement of the mill to thirty stamps, the erection of heavier machinery, and the building of a tramway of the Holliday patent some 1000 feet in length. These improved facilities are rushing to completion, and will be finished within the next thirty days, when steady work will continue through the winter as well as summer months. Fifty men are employed, and this force will be increased as soon as the facilities noted above are available. Returns from three car-loads of ore shipped during ten days resulted as follows: For first-class, 473 ounces silver and 6 per cent copper; for second class, 164 ounces silver; and for third-class, 64 ounces in silver a ton. Enough milling ore is now surfaced to test the full and steady capacity of a 40-stamp mill for two years. The mill concentrated 40 and 50 tons into one, which brings the grade up to very high figures.

CUBA.

THE JURAGUA MINES.—We make the following extracts from *El Eco de Cuba*, July 6th, relating to an American railroad and mining enterprise in Santiago de Cuba: On July 5th, the railroad leading from the coast to the Juragua iron mines was opened to traffic. This road was built by the Juragua Iron Company, made up of the Bethlehem Iron Company and the Pennsylvania Steel Company, of Harrisburg, Pennsylvania. Work was begun late in July, 1883, and to the present date, 27 kilometers, or 16¾ miles, have been finished, connecting the first mine, the Firmaza, with the company's dock on the coast. The line is narrow-gauge, with maximum grade of 2 8 per cent. There are eight wooden bridges and one iron viaduct, 800 feet long and 42 feet high, at Aquadoris. A shipping-dock of iron, 375 feet long and 45 feet high, is now building by the Phœnix Bridge Company. The chief-engineer of the company is Mr. Paul S. King, of Philadelphia. Mr. S. D. Kynor has charge of the mining operations, and has already collected 10,000 tons of ore at the mines ready for shipment. Mr. W. H. Nicholas is superintendent of the road. The hauling of the first 100 tons of ore to the shipping-dock was celebrated by Chief-Engineer King by inviting about fifty of the local dignitaries to an excursion over the line.

DAKOTA.

FATHER DE SMET.—The report of the superintendent from July 31st to August 8th shows ore extracted from first, second, and third levels, 2000 tons. Ore milled, 2000 tons. Tramway header advanced 10 feet. Header in 95 feet. Golden Gate east cross-cut, second level, advanced 12 feet. Total length, 28½ feet. The clean-up for the last half of July yielded $23,247.67.

GEORGIA.

SALE.—Some Cincinnati capitalists are negotiating for this property near Lincolnton.

IDAHO.

FOREST KING.—This company has sent by telegraph for a mill just like the one now at work at the Golconda mine.

RED ELEPHANT.—Henry F. Miller has bonded of Richardson this mine, near Bullion, for $20,000, and put to work three shifts.

MEXICO.

From the Pachuca District, a correspondent writes to the Mexican *Financier*

At the LaBlanca mine, in driving the bottom end cross-cut, to intersect one of the Santa Gertrudis lodes, a large stream of water has been encountered that will prevent driving for a few weeks, or until such time as the supposed lode drains itself.

The mine of La Alta Gracia is reported to be looking very well.

At the Desengaño mine, an assessment has been made of $2 a share. The eastern drift at the bottom level on the course of the lode is looking very prosperous, with some good specimens of ore that have been taken out during the past

week. Its average assay all over the drift is $40 to the monton of 30 hundredweight. It is estimated that there are 13 varas more to drill, in order to communicate with shaft No. A, which will be at a depth of 300 feet from the surface. This shaft is rumored to have at the bottom very rich ores, but, from lack of funds for repairs and also from having bad air in the mine, no one has been able to go down. For these reasons, the board of directors wishes to push forward the eastern drift and communicate with the shaft as quickly as possible. Friendly transactions in the shares have been made at $200 a share. Formerly, this mine was divided into 80 shares to the "bar," or one twenty-fifth part of the mine. The ground in the bottom of the drift is contracted for by the vara (of 2 feet 9 inches), at the price of $18 a vara. An average of 1¼ varas a week has driven by hand labor.

MICHIGAN.

COPPER MINES.

The July product of reporting mines is as follows :

	Tons.	Pounds.
Calumet & Hecla	2249	1405
Quincy	300	1155
Atlantic	184	1540
Franklin	175	500
Huron	116	1000
Allouez	106	350
Peninsula	63	600
Copper Falls	49	1185
Wolverine	40	.....
Hancock	38	750

Articles of association of the Washington Copper Mining Company, Houghton, capital $500,000, have been filed at Lansing.

HUMBOLDT.—A sweeping reduction of the mining force has been made at the Humboldt mine, when all but twelve of the men were discharged late last week. This practically amounts to a suspension of work at that mine, as the remnant of the force retained will barely suffice to keep the pumping machinery in motion, and care for the company's property.

PEWABIC.—The proceedings in the suit of T. Henry Mason *vs.* the Pewabic Mining Company before the special master in chancery closed at Mackinac on August 2d. The testimony taken before this officer will be presented to Judge Withey of the United States District Court, when further arguments will be heard and decision rendered.

IRON MINES.

Shipments of iron ore, pig-iron, and quartz from the ports of Escanaba, Marquette, and L'Anse for the season up to and including July 30th, 1884, were :

	Tons.
Escanaba :	
Marquette mines	303,580
Menominee Range mines	541,709
Marquette :	
Marquette mines	359,435
M. and W. lake shipments	78,266
Pig-iron	1,952
L'Anse	36,102
St. Ignace	62,596
Pig-iron	18,284
Total shipments from all ports	1,401,924

CHAPIN.—A number of men have been discharged, and the reduction will continue until the force is reduced two or three hundred men. The mine had, up to the 29th ult., reached in its shipments a total of 191,953 tons—extraordinary for only three months of navigation. As the Chapin has about filled its season's contracts, its product will not probably exceed that of last year.

LAKE SUPERIOR.—This Ishpeming mine has dismissed some seventy-five men from its hematite workings.

MINNESOTA.—Mr. G. C. Stone, who recently returned from a trip of inspection to the company's mines at Vermilion, said to a reporter of the Minneapolis *Evening Journal :* The company is opening the Tower, the Stone, the Breitung, and the Steitz. At the Stone and the Breitung, there are over 20,000 tons of ore in the stock-pile, ready for shipment. The mines are producing 500 tons a day, which will probably be increased to 700 tons a day. The company is doing a good deal of preparatory work at the Ely, Armstrong, and Lee mines. The force of 300 men at work will soon be increased to 450. The railroad is completed to the mines, and ore will be shipped by the 15th of August.

YOUNGSTOWN.—The entire force at the mine, about 75 men, has been discharged. The pumps only are in operation.

MISSOURI.

The Joplin *News* says : The yield of mineral from the Picher land in one week aggregated about 80,000 pounds, which, the secretary says, is not bad for a "played-out mining camp." The Pacific Company's mines produce about 50,000 pounds, the Atlantic Company's new prospect 15,000 pounds, and the rest comes from scattering mines on this rich tract of land. The Joplin mines are doing better, on the whole, than for several years past, with new shafts going down every day.

MONTANA.

LEWIS & CLARKE COUNTY.

ALICE.—The company has issued its usual detailed quarterly statement, covering the period from April 1st to July 1st :

Receipts.	
Cash	$44,255.35
Bullion yield	325,534.63
Miscellaneous receipts	3,567.07
	$373,357.05
Disbursements.	
Discount on silver	$48,474.12
Expressage on bullion	4,163.96
Permanent improvements	16,948.95
Prospecting and dead-work	25,624.58
Ore extraction	45,706.54
Ore reduction	59,477.73
General supplies	4,184.32
Expense accounts	8,723.93
Lode claims	6,126.00
Bullion reclamations	255.35
	$219,685.48

This shows a gain of $109,416.22, from which two monthly payments for account of the company's notes, or $8333.34 and a dividend of $50,000 have been paid, leaving a balance of cash in the hands of the treasurer of $95,338.23. No money was paid for wood by the treasurer during the quarter, consequently the net gain for the quarter, $109,41 .22, is larger than it would have been had the wood contractors been able to haul wood on their contract. The works were run from the wood reserve in the company's yards.

BELL.—The Bell smelter has resumed operations with 1000 tons of silver-copper ore desulphurized and ready for reduction into matte.

PARROTT.—The Parrott continues to produce 120 tons of ore daily from the 250 and 330-foot levels. Drifts are extending both on the north and south veins.

NEVADA.

COMSTOCK LODE.

HALE & NORCROSS.—The diamond drill having been run in various directions on the 2800 level, regular work at drifting has been resumed. From the ore-body on the 200 level, they continue to ship about 400 tons a week to the mills on the Carson River. Last Monday, there were sent to the Carson Mint 4300 ounces of crude bullion, being an additional return of bullion from the Eureka mill on last month's account.

BLUE JACKET.—J. M. Dawley, a well-known mining man, formerly of Austin, is in Elko for the purpose of meeting a couple of English mining operators and taking them up to Columbia to examine the Blue Jacket Mining Company's claims. The property to be examined belongs to the Blythe estate in San Francisco, and if found satisfactory, will probably be purchased by an English company.

EUREKA DISTRICT.

EUREKA CONSOLIDATED.—The Ruby Hill *Mining News* says : It is a well-known fact that there is ore under the water in the Eureka Consolidated mine. About five years ago, the shale and quartzite (the two formations between which ore is found on Ruby Hill), while they were as much as 800 feet apart on the 7th, 8th, 9th, and 10th levels of the Eureka Consolidated, and ore-bodies several hundred feet wide were found there, yet, on the 12th level of that mine, these two formations came almost together, and formed a foot and hanging-wall that were only a few inches apart. It was determined to sink another hundred feet. When the 13th level was reached, a drift was started ; and when this was carried in a short distance, it was found that the shale and quartzite had branched off from each other below the 12th level, so that, while they were almost together there, yet, when the 13th level was reached, those two walls were at least 25 feet apart. On this level, the 13th, ore in paying quantities was found. One little body was discovered then, assays of which went as high as $600 a ton ; this the writer is certain of, having worked there himself. When it was found that the shale and the quartzite had opened out considerably on the 13th level, it was thought advisable to sink the shaft another 100 feet. This was done, and the 14th level was reached. Drifts were started, and in a short time it was found that the two walls, or the quartzite and shale, had been growing considerably wider from the 13th level, and they were now again more than a hundred feet apart ; in fact, it was never determined how far they were apart ; for in a short time, water was struck, and operations had to cease. This was not done, however, before it was proved that ore was also on the 14th level. The subsequent events in the history of the mine all our readers are acquainted with. The new shaft was sunk, new machinery erected, a long cross-cut was carried in, and the ledge encountered. The water, of course, in the old workings had formed in the reservoirs ; and when the water-channel was struck, it flowed into the new shaft. Efforts were made to get the water out, and they were nearly successful in so doing, when the work was stopped.

EUREKA TUNNEL.—The Miners' Union served a notice upon the Eureka Tunnel Consolidated Mining Company and the men working in the mine, that hereafter miners will not be allowed to work in it underground on any other condition than $4 a day in coin. They had been working for $2 a day in cash and $2 additional, making up the required $4, in stock of the company. The owners of the mine have determined to shut it down.

TAYLOR DISTRICT.

MONITOR.—The ore taken from the Spar chamber for some time past has averaged about $259. The Black chamber in the Gore ground goes about $240, and some of it as high as $800. The ore taken from this place in the last month has more than set the company even on the purchase price of the ground, which was $15,000.

UTAH.

The Salt Lake *Tribune* says that the receipts of bullion in Salt Lake City for the past seven months of 1884, excluding ore, were as follows :

January	$449,228.74	June	$539,532.90
February	364,606.47	July	530,978.35
March	460,366.60		
April	432,809.44	Total	$3,120,938.65
May	343,416.15		

This does not include a number of current operations that make no reports except at the close of the year.

VERMONT.

ROOKS.—Water has materially increased in the winze now sinking, yet 7 feet of progress has been made, and the adit has advanced 15 feet the past week. The mill is doing the usual amount of work.

WISCONSIN.

The Marquette *Mining Journal* has the following on the Montreal Iron Range : Considerable work has been done in exploration, and the developments warrant the belief that a number of good mines will be opened by the time shipping facilities are furnished by the completion of the Milwaukee, Lake Shore & Western Railroad to Ashland. Among the most promising of these developments is that on section 24, town 46, range 2, where explorations have been going on under direction of James A. Wood for E. J. Foster and others, and where a lens of ore 24 feet in width has been developed for a length of over 200 feet. The ore is a soft, blue hematite, in which occur bunches of a hard, fine-grained ore. The main body will, however, undoubtedly prove to be a soft hematite, which crumbles and disintegrates on exposure. It is of uniform good quality, low in phosphorus, and is in sufficient body to warrant the expectation of a good mine.

The Northern Chief Iron Company, of Wausau, Wis., is president, is giving options to outsiders on lands in sections 24, 25, 26, 27, 28, 32, and 34, town 46, range 2, and in section 6, town 45, same range. The Penoka & Gogeebic Developing Company has options on some of these lands, and is working in sections 24, 27, 32, and 34, town 46, and in section 6, town 45, on which last it has a good show of ore.

The Montreal River Iron Company is exploring on the southwest quarter of the northwest quarter, and northwest quarter of the southwest quarter, of section 33, 46-2, and has so far developed a lens of ore 70 feet wide (so reported, and not stated on personal knowledge of the *Mining Journal*), over a length of 700 feet, further explorations having been stopped by reason of inability to contend with the water without the aid of a steam-pump. There are on this property two distinct veins of ore, known as the north and south veins, work so far having been confined exclusively to the one first named. An effort will now be made to open the south vein, which is identical with the lens in which the Ryan Iron Mining Company is at work, a short distance to the eastward. The ore of the north vein is of exceptionally fine quality, showing by analysis 68·50 metallic iron, ·012 phosphorus, and only ·54 silica.

The Ryan lease, referred to above, lies immediately east of the Montreal, in the same section. There, a lens of ore has been developed, over a length of about 300 feet, the pits showing it to carry a width of not less than 30 feet. The explorations are in what is known as the south vein, and they are now looking for an extension of the north lens in which the Montreal Company's exploratory pits are located. An average analysis of the Ryan ore gave 62·37 metallic iron 1·49 silica, ·032 sulphur, and ·048 phosphorus.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, August 15.

There was a better business transacted in the mining market this week, and prices also were held firmer. The Comstocks, although very quiet, were firm. The Leadville stocks show no marked improvement in price, but remain about steady. The Bodie stocks rallied a little, especially Standard, which was quite strong and sold fairly. The Tuscaroras were quiet and steady. Horn-Silver is still held at a firm figure. Green Mountain seems to be weakening under small sales. Oriental & Miller was the favorite low-priced stock, and sold very actively at strong figures. The State Line stocks are again coming to the front, and this week record a fair business at firm prices. We give a complete summary of the market below. The total number of shares sold was 94,420, as against 55,981 last week.

The Comstock shares were very quiet, but prices were a little firmer than last week. California was moderately dealt in at steady prices, selling at from 14@18@16c. Consolidated Virginia records a very active business, and sold at firm prices; it was quoted at from 29@35@32c. Sierra Nevada was a little weak, selling at from $2.40@$2, with a small business. Union Consolidated sold at $1.85, and Mexican at $2.10. Sutro Tunnel was active and strong; it sold at from 16@19c.

The Leadville stocks were but moderately dealt in at steady prices. Amie sold at 6c. Chrysolite records a small business at steady prices, selling at from 85@80c.; a 25-share lot sold to-day at 70c. Dunkin sold at 26c., and Breece at 19c. Iron Silver was quiet and steady, selling at from $1.15@$1.10. Leadville was strong, selling at from 27@35c., with a small business. Little Chief records a small business at prices a little weak; it sold at from 31@28c. Little Pittsburg sold at 27c.

The Bodie stocks rallied and were quite strong, being fairly dealt in. There was no change in Bodie Consolidated, it being the same as in our last, being quoted at from $2@$1.85, with a small business. Standard fairly dealt in, and was quite strong; it rallied from $1.10@$1.40, selling at the latter figure to-day. Bulwer was also strong, selling at from 55@65c., with a fair business. Consolidated Pacific records an active business at strong prices, selling at from 53@59c.

The Tuscarora stocks were very quiet, and sold at strong prices. Grand Prize was quite strong, selling at from 48@65c. with a small business. Argenta sold at 15c. Belle Isle sold at strong prices under a fair business; it was quoted at from 59@65c. Navajo records one transaction to-day at $4.25. Independence sold at 30c.

In the miscellaneous list, Alice was strong, selling at $2.75, with a small business. Bassick sold at $6. Green Mountain seemed to be on the decline; it sold at from $2@$1.80, with a small business. Horn-Silver sold ex dividend; it was moderately dealt in, and was quoted at from $5.88@$5.50. Robinson was quiet and steady, selling at from 35@30c. Silver King was quiet and strong at $5@$5.13. Castle Creek was a little weak, under a small business, declining from 14@10c.

Barcelona sold at 16c. Caledonia sold on Saturday last at from 95c.@$1, and was fairly dealt in. Oriental & Miller was quite strong, and was very actively dealt in; it sold at from 12@18c. Rappahannock was quiet and steady, selling from 17@16c. The State Line stocks were fairly dealt in at steady prices. Nos. 1 & 4 sold at from 3@4c., and Nos. 2 & 3 at from 4@8c.

MEETINGS.

Bull-Domingo Mining Company, No. 45 William street, New York City, meeting of stockholders for the purpose of electing trustees to serve until the next annual election, August 19th, at one o'clock P.M.

DIVIDENDS.

The Moulton Mining Company, of Montana, has declared its second dividend of $30,000, or 7½ cents a share, payable at the office of John H. Moore & Co., transfer-agents, No. 78 Broadway, New York City, on and after September 10th.

The Jackson Mining Company, Ruby Hill, Nevada, has paid a dividend of $5000 during the first half of 1884.

The Homestake Gold Mining Company, of Dakota, has declared its usual monthly dividend of $25,000 for July, payable at the San Francisco office, or by Messrs. Lounsbery & Haggin, 15 Broad street, on the 25th inst. Total dividends to date, $2,487,500.

The Paradise Valley Mining Company, Humboldt County, Nevada, has paid dividends aggregating $30,000, during the first six months of 1884.

PIPE LINE CERTIFICATES.

Messrs. Watson & Gibson, petroleum brokers, No. 49 Broadway, report as follows for the week:

Last Saturday, the market sold up to 81, the highest price since the panic. During Monday, Tuesday, and Wednesday, the market was firm between 77 and 79⅛, but it had no special characteristics. On Thursday, the opening, 78⅛, was soon followed by an advance to 79¼. A reaction followed later in the day to 77, owing to reports that the Barnsdale well on the Ward-well frontier was good and would extend the field. The weakness that this fact induced was continued and increased to-day by the announcement that the Barnsdale well had made 247 barrels in twenty-four hours. The producers have a meeting on the 21st to consider the question of a general shut-down movement. This is a very difficult thing to accomplish, and it is questionable whether the trade would be permanently benefited were their plan successful. It would leave the market in an artificial condition. Refined oil weaker, 7⅛c.

The following table gives the quotations and sales at the New York Mining Stock and National Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 9	$0.79	$0.81	$0.78¾	$0.79¾	4,185,000
11	.79¾	.79⅞	.77	.78¼	8,436,000
12	.78	.79⅝	.77½	.78⅛	5,624.000
13	.77¾	.79¼	.77⅝	.78¼	4,665,000
14	.78⅛	.79¼	.77	.77⅛	5,562,000
15	.76¼	.77¼	.76⅛	.76⅜	4,960,000
Total sales					33,433.000

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS. Aug. 8.	Aug. 9.	Aug. 11.	Aug. 12.	Aug. 13	Aug. 14.
Albion						
Alpha						
Alta	2⅜	2½	2½	2⅜	2½	2¼
Argenta						
Bechtel						
Belcher	1	1	1		1	
Belle Isle						
Best & Belcher	2⅛	2⅞	2¾	2¾	2½	2½
Bodie	2	1¾	1¾	1¾	2⅛	2
Bullion						
Bulwer						
California	.10		.10	.10		.10
Challar	3¼	4	3¾	3¾	3½	3⅜
Con. Pacific	.55	.50	.55		.55	
Con. Virginia	.25	.30	.30	.25	.30	.30
Crown Point	1⅜	1½	1⅜	1½	1½	1½
Day						
Elko Cons						
Eureka Cons		2½				
Exchequer						
Gould & Curry	2¼	2½	2⅜	2⅜	2¼	2¼
Grand Prize						
Hale & Norcross	2⅝	3	2½	2½	2½	2½
Independence						
Martin White	.15					
Mexican	2⅛	2⅜	2¼	2¼	2	2
Mono						
Mount Diablo		2				
Navajo	3⅝	3¾	3½		4	4⅛
Northern Belle						
North Belle Isle						
Ophir	1⅛	1½	1½	1⅜	1¼	1¼
Overman						
Potosi	1¾	2⅛	2	2	1¾	1¾
Savage	1	1⅛	1	1	.90	.90
Scorpion						
Sierra Nevada	2⅜	2¼	2¼	2¼	2⅛	2
Silver King						
Tip Top						
Union Cons	1⅞	1¾	1¾	1¾	1¾	1⅝
Utah	1½	1⅝	1½	1⅜	1⅜	
Wales Cons						
Yellow Jacket	2⅛	2⅛	2⅛	2	2	

Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, August 14.

The market for copper stocks the past week has ruled steady but dull, with not much doing outside of the two leading stocks, which continue in fair investment demand at $164@$165 for Calumet & Hecla, and $36@$36½ for Quincy. At the present price of ingot copper, we can hardly expect an advance over these prices, although the increased production of the Calumet & Hecla would seem to make up for the lower rates for ingot. The product for July was about 2250 tons, and the Quincy mined about 300 tons, which, even at the present price, must yield a handsome profit over the cost of production. A small lot of Atlantic sold at $8. Pewabic sold at 50c. a share, the last sale being at $1⅛, May 28th.

In silver stocks, Bonanza sold at $1, and there seems to be quite a demand for it at about this price. Harshaw sold at 40c., same as last sale.

At the Boston Mining Exchange, there is not much doing at present. Bowman Silver declined from 14@11c. Dunkin is in fair demand at 25c. Catalpa is also wanted at 25c. Bijou sold at 12½@13c. There has been a demand for Sullivan the past week, and sales have been made at 10c., assessment paid. Outside of these specialties, the business has been light.

3 P M.—At the Board, this afternoon, Atlantic sold at $8. Bonanza at $1. Calumet & Hecla was offered at $165. Quincy, $36 bid, $36½ asked. Bowman, 10c. bid, 12c. asked. Dunkin, 26c. bid. Sullivan, 10c. bid. Catalpa, 25c. bid. Others unchanged.

BULLION MARKET.

NEW YORK, Friday Evening, August 15.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
Aug. 9	50 13-16	110⅜	Aug. 13	50¾	110¼
11	50 13-16	110¼	14	50¾	110¼
12	50 14-16	110¼	15	50¾	110⅛

The London market is lower, under weak India Exchange, and our own adds weak Sterling Exchanges, so that silver is lower and nominal at the figures given in annexed table.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank lost £226,837 bullion, but the proportion of its reserve to its liabilities was raised from 41⅝ to 41 13-16, against 46 9-16 per cent at this date last year. The weekly statement of the Bank of France shows gains of 788,000 francs gold and 1,933,000 francs silver.

BULLION PRODUCTION FOR 1884.

MINES.	States.	Month of July.	Year from Jan. 1st, 1884.
		$	$
*Alice, G. S.	Mont.	†	520,843
*Belmont	Mont.		8,081
Bodie, G	Cal		396,063
*Bonanza King, S.	Cal		211,904
*Boston & Montana, G	Mont.		239,779
*Chrysolite, S. L	Colo.	13,113	98,478
*Consolidated Bobtail, G	Colo.		47,280
*Contention, S. G	Ariz.		314,929
*Deadwood-Terra, G	Dak.		260,923
*Derbec Blue Gravel, G. S.	Colo.		73,617
*Father de Smet, G	Dak.	43,699	267,837
Grand Prize, S	Nev		25,000
*Hecla Cons., G. S. L. C	Mont.	‡	320,052
Helena, S. L	Mont.		164,000
*Homestake, G	Dak.		607,988
*Hope, S	Mont.		17,980
Horn-Silver, S. L	Utah.		1,444,000
*Iron Silver, S. L	Colo.		381,356
*Kentuck, G. S	Nev.	1,717	20,577
*Lexington, G. S.	Mont.		612,686
*Little Pittsburg, S.	Colo.		52,949
*Moulton, G. S.	Mont.		370,906
*Mount Diablo, S.	Nev.		24,820
*Navajo, G. S.	Nev.	34,667	243,697
North Belle Isle	Nev.	5,874	5,874
*Ontario, S. L.	Utah.		1,021,841
*Original, S. C.	Mont.		29,724
*Oxford, G.	N. S.	2,471	22,378
*Paradise Valley, S. G	Nev.		45,164
*Plymouth Consolidated, G	Cal.		623,546
*Rooks, G	Vt.	6,328	28,661
*South Yuba, G	Cal		18,015
*Stormont	Utah.	16,858	99,748
*Syndicate, G. S.	Cal.	14.067	98,078
*Tombstone, S. L.	Ariz.		370,078
United Gregory, G	Colo.		7,174
Total amount of shipments to date			$9,096,504

* Official. † Assay value. ‡ Not including value of lead and copper. ** Silver valued at $1.05 an ounce. G. Gold; S. Silver; L. Lead; C. Copper. —— No bullion produced.

METALS.

NEW YORK, Friday Evening, August 15.

A gentleman closely identified with the British copper interests, and in an exceptional position to speak with authority, sends us the following, which is of direct interest to the copper trade:

Some time since, you stated the amount of dividends paid by silver mines at Butte City, Montana. Your Butte friends took exception to your not mentioning the dividends paid by the copper mines, which they are unable to state themselves, contenting themselves with vague statements of profits, naming no figures.

It is true that most of the copper companies at Butte are close corporations, unwilling to give the *Inter-Mountain* reporter any facts, probably for good reasons. At the same time, credit should be given to the Butte papers for their efforts to obtain facts about the mines, production, expenses, and incomes of said companies. The occasional failure of the local papers to be strictly accurate is therefore easily accounted for, and their contradictory statements in the same way. Let us see what dividends (net profits) the Butte copper companies can show at the present prices of copper.

1. The Anaconda Smelting-Works are still in process of erection, and whether the amount of money invested in its mines and smelting-works will allow the payment of an earned dividend remains to be seen next year. 2. The Bell smelter and mine has not paid a cent, having failed last year, and having only paid about 30 cents on the dollar to the miners and furnace-men, besides having reduced the original shareholders by changing the old shares into new ones at the rate of 100 old ones to 25 new ones, the balance taken up in payment of a floating debt. 3 Of the Williams smelter, we do not know of any dividend paid, its profits presumably appearing in those of the Boston & Colorado Company, of Argo, Colo. 4 and 5. Parrott Copper and the Montana Copper companies paid a regular dividend about nine months since, after having both worked three years without being able to earn a dividend, a fact easily explained by the outrageous freight rates they were formerly taxed, on ores, matte, and fuel by the Union Pacific Railroad.

Your journal of July 12th estimated the total copper product of the Butte District at 20,000 net tons fine for 1884, which, notwithstanding the assertions of Butte papers, seems to be a correct estimate. Let us take the *Inter-Mountain's* own figures. We are told that the total shipments of ore and matte were 29,666 tons for the first six months of 1884. Of these probably not more than 8000 tons are matte, averaging 55 per cent, namely: Bell Smelter, 45 per cent, 1000 tons (not running all the time); Montana Copper Company, 60 per cent, 3000 tons; Parrott Company, 60 per cent, 2500 tons; Williams Smelter, 45 per cent, 1500 tons; total, 8000 tons, equal to 4000 tons fine. Ore shipments, 21,666, averaging 28 per cent, 6000; total, 10,400 tons for the half-year of 1884.

We take the average of copper ores to be 28 per cent, as the *Inter-Mountain* states that Anaconda ores average about 35 per cent and the Liquidator ores about 25 per cent. Returns of assays from England never agree as to mine assays, and deducting 1·3 fire assay, we shall be safe in estimating 28 per cent as an average.

Your approximation of Butte's copper production seems, therefore, to be a correct one, especially as about 4000 tons of ore and 500 tons of matte from last year's production had not been shipped before January, according to Butte newspaper statements of that date. This is, in fact, a tremendous output of copper, not counting the silver contained in the Montana Copper Company's ores and mattes and the Bell and Williams mattes, which should pay handsomely by and by to those interested. Our friends on the other side of the Atlantic, at the same time, need not to be afraid of the production. We are safe in saying that one half of the matte and ore was used for home consumption and refined in this country. Consumption is increasing here as well as in Europe, and the decrease of Chili production will offset the increase here.

Copper.—The market has remained quiet, Lake being nominally quoted at 14c., while other brands are nominally held at 13@13½c. It is rumored, however, that there is considerably more copper selling below 13c. than is generally believed, and that it is not confined to outside brands known to contain impurities, or little known to the trade.

London cables £54 5s. for Chili Bars and £59 10s. for Best Selected.

Messrs. James Lewis & Son say in their report:

An important cause of the great depression so long existing in the copper market, in face of very favorable statistics, is the extensive forward sales of English and Chili copper made by the purchasers on the one hand, and the shippers on the other, of the large quantities of American ore and matte contracted for in advance on the basis of the price of Chili Bars at the time of delivery. The low price accepted for nearly 10,000 tons of this ore for early delivery affects the value of other furnace material, which is now proportionately much cheaper than Chili Bars.

The sales of furnace material have been:

Tons.			Per c't.	At	Per unit.
150	Ore	Cape	30	Sw.	11s 0d
75	Prec	English			11s 0d
15	"	American		Liv.	10s 10½d
15	"	"		"	11s 0d
66	Ore	Peruvian	25	"	10s 9d
335	"	"	25	"	10s 6d
31	"	Lisbon	20	"	10s 6d
30	Prec	English			11s 1½d
60	Ore	Italian (Libiola)	10	Sw.	10s 0d
300	Reg	Bolivian		"	10s 9d
130	Prec	Spanish (Cueva de la Mora)		"	11s 0d
650	Ore	New Quebrada (Ruoy)	12	"	10s 0d
140	"	"	12	"	10s 0d
680	Reg			"	10s 0d
50	Prec	Rio Tinto (Seconds)		Liv.	10s 9d
1850	Ore	Betts Cove	8	"	9s 6d
690	Reg	Chili, ex Jungfrau		Sw.	10s 6d
382	Ore	Italian	10	Liv.	9s 6d
100	Prec	Rio Tinto	90	Price not fixed.	
25	"	" (Seconds)		Liv.	10s 9d
270	"	Spanish (Cueva de la Mora)		Sw.	10s 6d
50	Ore	New Quebrada (Yellow)	10	Liv.	9s 6d
100	Prec	Mason's, from wharf		"	10s 6d
70	"	English			10s 10½d
50	"	"			11s 0d
12	Ore	Peruvian	25	Liv.	10s 6d
120	"	Spanish	30	Sw.	10s 0d
60	Prec	" (Cueva de la Mora)		"	10s 6d
100	Reg	Chili		"	10s 6d
629	"	"		"	10s 6d
850	"	"		Liv.	10s 6d
50	Prec	English			10s 10½d
490	"	Mason's, from wharf		Liv.	10s 3d
25	"	Rio Tinto	90	"	11s 6d
99	"	Mason's, from wharf		"	10s 3d
200	Ore	New Quebrada (Yellow)	10	"	9s 9d
2100	"	Italian (Libiola)	10	Sw.	9s 9d
300	Reg	Chili, ex Edgar		"	10s 6d
170	Ore	Italian	10	Liv.	9s 9d
600	Reg	Chili		"	10s 6d
274	Prec	Mason's, from wharf		"	10s 3d
300	"	Spanish (Cueva de la Mora)		Sw.	10s 6d
250	Reg	Chili		"	10s 6d
304	"	"		"	10s 6d

Messrs. James Lewis & Son make the following statement of imports of other than Chili copper—tons fine—into Liverpool and Swansea during the first seven months of the following years:

	1882.	1883.	1884.
From United States	301	3,948	7,846
Canada	157	292	266
Mexico	193	266	204
Peru	738	252	303
River Plate	126	230	86
New Quebrada	1,788	2,108	2,495
Newfoundland	639	373	.....
Spain	186	1,042	1,739
Portugal	....	63	200
Italy	841	543	334
Norway	214	35	45
Cape of Good Hope	2,117	2,930	3,092
Australia	112	32	419
Sundries	519	687	153
Precipitate	5,505	5,568	6,665
	13,436	18,369	23,157

Messrs. James & Shakspeare, of London, have published the following statistics.

		July 1 to 31. Imports.	Deliveries.	
Fine foreign, chiefly Australian	Tons.	1,032	Tons. 1,473	London.
Chili	Bars	2,069	2,196	
	Ingots	350	236	
	In ores and regulus	1,444	1,374	Liverpool and Swansea.
American, chiefly furnace material		928	961	
Spanish precipitate and sundries		1,676	2,340	
Totals—England		7,499	8,580	
American, chiefly ingots		775	675	
Chili bars, ingots, and Barilla		1,061	911	France.
Sundries		5	5	
Totals — England and France		9,340	10,171	

		Stocks. July 31.	June 30.	
Fine foreign, chiefly Australian	Tons.	3,513	Tons. 3,954	London.
Chili	Bars	22,934	23,061	
	Ingots	310	196	
	In ores and regulus	1,144	1,074	Liverpool and Swansea.
American, chiefly furnace material		105	138	
Spanish precipitate and sundries		4,107	4,771	
Totals—England		32,113	33,194	
American, chiefly ingots		260	160	
Chili bars, ingots, and Barilla		1,385	1,235	France.
Sundries		10	10	
Totals—England and France		33,768	34,599	
Advised by mail and telegram:				
		Tons.	Tons.	
Chili		7,776	9,190	
Australian		1,050	1,550	
Total visible supply		42,594	45,339	

	Jan. 1 to July 31.		
	Tons.	Tons.	Tons.
England and France:	1884.	1883.	1882.
Imports	56,195	51,094	39,120
Deliveries	62,270	48,821	46,705

Tin.—The market has been moderately active at 18¾@19c. for spot Straits, London cabling £83 5s.

Lead.—Although the market has been quiet, it has shown a slightly weakening tendency, and a few hundred tons in the aggregate were sold, chiefly in small lots, at 3·60c., which we quote.

Messrs. John Wahl & Co. telegraph to us as follows to-day from St. Louis:

The situation remains substantially unchanged, the market having developed no new features. We quote both Hard and Soft lead, 3·40c. We note sales during the early part of the week of 400 tons of Refined lead at 3·40c.

Messrs. Everett & Post send us the following dispatch from Chicago:

Absence of buyers has made our market dull. Some sellers are anxious to place their lead, but do not wish to name any lower prices than present values. Our market is nominally 3·40c., although 100 tons of a special brand sold at 3·45c.

Spelter.—There is nothing new to report.

Antimony.—There is a moderate jobbing trade at unchanged quotations.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, August 15.

American Pig.—The market continues in a depressed condition, offerings on the part of sellers being more numerous and urgent, particularly on the part of makers of outside brands little known in the trade here.

We quote standard brands: No. 1 Foundry, $19@$20 50; No. 2, $18@$19; and Gray Forge, $17.50@$18.50, with outside brands from 50c.@$1 lower. Foreign Bessemer is nominally $19@$19 50. Spiegeleisen is nominally $27.50@$28 for 20 per cent, some business having been done during the week.

Scotch Pig.—The market continues dull.

We quote ex ship and to arrive: Coltness, $21.50; Langloan, $21.50; Summerlee, $20.75; Dalmellington, $20; Gartsherrie, $21; Eglinton, $19.25@$19.50; and Glengarnock, $20@$20.50.

At the Metal Exchange, the following cable quotations have been received: Coltness, 57s. 6d.; Langloan, 53s. 9d.; Summerlee, 51s.; Gartsherrie, 51s. 9d.; Glengarnock, at Ardrossan, 49s. 6d.; Dalmellington, 47s.; and Eglinton, 44s. Warrants, 41s. 6½d.

Steel Rails.—In the aggregate, fully 30,000 tons of steel rails have been sold at prices varying from a little under $27@$28 at mill, and there are rumors that even lower figures have been accepted in the West. The low figures are beginning to tempt the railroads, and inquiries are growing numerous.

Old Rails.—We quote $18@$18.50.

Philadelphia. August 15.

[From our Special Correspondent.]

Pig-Iron.—The only transaction in pig-iron this week that is worthy of notice has been a sale of 1000 tons at private terms. As a general thing, consumers are very backward, and are only ordering for immediate requirements. Under the discouraging demand and slightly increasing stocks, prices are still weakening, and lower prices than ever are accepted. A good deal of inferior iron has sold at prices far below quotations. Best brands are, of course, held higher, but they are moved with difficulty. There is still a good deal of interest expressed in the question of a restriction during September; but it is not considered probable that any united action will be taken by Eastern pig-iron makers. Quotations are given at $19@$20.50 for No. 1 Foundry Iron, $18@$19 for No. 2, and $16.50@$17.50 for good Forge, with inferior stuff selling as low as $15.50 delivered.

Foreign Iron.—Quotations are $19 for Bessemer, $28 for 20 per cent spiegeleisen, $78 for 80 per cent spiegeleisen, and $40 for steel blooms. There is very little movement, and no prospects of early activity.

Muck-Bars.—Several small lots have been ordered during the week at $30. Some makes are held 50c@$1 higher.

Blooms.—Good qualities are firm at the usual prices. There is not much demand except for small lots.

Merchant Bar.—There is inquiry for some good-sized lots, which are anxiously looked for. Prices are weak, and there is very little business doing. The mills have a very short supply of orders, and competition is destined to depress prices still lower.

Structural Iron.—There has been a fair movement of small lots all through the week, and several very heavy orders are now before the trade. The Detroit Bridge

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Aug. 9. H.	Aug. 9. L.	Aug. 11. H.	Aug. 11. L.	Aug. 12. H.	Aug. 12. L.	Aug. 13. H.	Aug. 13. L.	Aug. 14. H.	Aug. 14. L.	Aug. 15. H.	Aug. 15. L.	SALES.
Alice, Mon.	.....	.....	.....	.....	.....	.....	2.75	.....	2.75	.....	.....	.....	400
Amie Con., Co.	.....	.....	.....	.....	.06	.....	.06	.....	.....	.....	.....	.....	800
Argenta	.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Bassick, Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.00	.....	10
Belle Isle, Ne.	.....	.....	.59	.....	.60	.59	.....	.....	.62	.....	.65	.....	1,700
Bodie Cons., Ca.	.....	.....	.....	.....	.....	.....	2.00	1.85	.....	.....	1.85	.....	300
Breece, Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.19	.....	500
Bulwer, Ca.	.58	.....	.....	.....	.....	.....	.65	.....	.55	.....	.65	.....	2,900
California, Ne.	.18	.14	.18	.16	.16	.....	.....	.....	.....	.....	.....	.....	3,100
Cal. & Hecla, Mich.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Castle Creek	.14	.13	.12	.....	.....	.....	.12	.....	.....	.....	.10	.....	1,600
Chollar	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chrysolite, Co.	.85	.....	.....	.....	.....	.....	.80	.....	.....	.....	.70	.....	525
Cons. Va., Ne.	.30	.29	.35	.30	.33	.32	.33	.32	.34	.....	.34	.32	19,400
Copper Queen	.....	.....	.....	.....	4 50	.....	.....	.....	.....	.....	.....	.....	100
Dunkin, Co.	.....	.....	.....	.....	.....	.....	.26	.....	.....	.....	.....	.....	1,000
Eureka Cons., Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Father de Smet, Dk.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Findley, Ga.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Stripe, Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gould & Curry, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Prize, Ne.	.62	.48	.....	.....	.....	.....	.....	.....	.....	.....	.65	.....	500
Green Mountain, Ca.	2 00	1.85	.....	.....	1.85	.....	.....	.....	1.80	.....	.....	.....	900
Hale & Norcross, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hall-Anderson, N. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homestake, Dk.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horn-Silver, Ut.	5 88	5.75	.....	.....	5.50	.....	5.50	.....	5 5	.....	.....	.....	710
Independence, Ne.	.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500
Iron Silver, Co.	1.15	.....	.....	.....	.....	.....	1.15	1.10	.....	.....	.....	.....	1,200
Leadville C., Co.	.....	.....	.....	.....	.....	.....	.27	.....	.35	.....	.....	.....	425
Little Chief, Co.	.31	.....	.....	.....	.....	.....	.....	.....	.28	.....	.....	.....	1,200
Little Pittsburg, Co.	.27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
Martin White, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Navajo, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.25	.....	100
Northern Belle	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Belle Isle, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ontario, Ut	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ophir, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quicksilver Pref., Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" Com., Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Robinson Cons., Co.	.35	.....	.30	.....	.30	.....	.....	.....	.....	.....	.....	.....	700
Savage, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Nevada, Ne.	2 40	.....	.....	.....	.....	.....	.....	.....	2.00	.....	.....	.....	400
Silver King, Ar.	.....	.....	.....	.....	.....	.....	.....	.....	5.13	5.00	.....	.....	200
Spring Valley, Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard, Ca.	1.10	.....	.....	.....	.....	.....	1.25	.....	1.25	.....	1.40	.....	625
Stormont, Ut.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tip Top, Ar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vizina, Ar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yellow Jacket	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Aug. 9. H.	Aug. 9. L.	Aug. 11. H.	Aug. 11. L.	Aug. 12. H.	Aug. 12. L.	Aug. 13. H.	Aug. 13. L.	Aug. 14. H.	Aug. 14. L.	Aug. 15. H.	Aug. 15. L.	SALES.
Albion	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
American Flag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barcelona, G.	.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300
Bechtel Con., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belvidere	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Best & Belcher, G. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Big Pittsburg, S. L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bradshaw, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bull-Domingo, S. L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cal., B. H., G	1.00	.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,100
Central Ariz'na, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Climax, Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado Central.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Imperial	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Con. Pacific	.56	.55	.58	.....	.55	.54	.56	.55	.58	.56	.59	.57	4,000
Decatur	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Durango, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eastern Oregon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Goodshaw, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harlem M. & M. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hortense, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lacrosse, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mariposa Pref., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" Com., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mexican, G. S.	2.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Mono	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Standard, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Horn-Silv'r, S. L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ori'nt'l & Miller, S.	.....	.....	.....	.....	.....	.....	.....	.....	12	.....	12	.....	1,200
Rappahannock, G.	.17	.....	.....	.....	17	.....	.....	.....	16	.....	.....	.....	2,000
Red Elephant, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ruby, of Arizona.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Cliff, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sonora Con.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bodie, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bulwer, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Hite	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Pacific	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
State Line, 1 & 4, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.04	6,500
" Nos. 2 & 3, S.	.....	.....	.....	.04	.....	.....	.....	.....	.....	.....	.....	.08	8,100
Sutro Tunnel	.18	.16	.17	.....	.19	.....	.18	.17	.18	.17	.19	.....	8,000
Taylor Plumas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unadilla, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union Cons., G. S.	.....	.....	.....	.....	.....	.....	.....	1.85	.....	.....	.....	.....	200
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Full tables giving the total amount of dividends, capital, etc., will be printed the first week of each month. Dividend shares sold, 39,920. Non-dividend shares sold, 54,500.

Company is in the market for 1800 tons of structural iron, of which 500 tons are to be angles, 500 plates, and 300 tons beams for the Wabash bridges. These orders will be placed in a day or two, most of them here, in all probability. It is rumored that the business was to have been placed with Carnegie, of Pittsburg, but the works there were already too full. The Phœnixville Company has just received a 400-ton order for construction iron for Chicago building requirements. The Pan-Handle road will soon be in the market for about 2000 tons of iron, and there are several other requirements in sight, for lots ranging from 100 to 800 tons each, making altogether a very large amount of business that our manufacturers have a chance of securing within the next few weeks. Prices are unchanged, but it is probable that they will strengthen under the influence of such an active demand.

Plate and Tank-Iron.—Quotations are as follows: 2·10c. for Common Plate, 2·15c. for Tank, 2·75c. for Shell, 3·75c. for Flange, and 4@4·25c. for Fire Box. The demand has been satisfactory, though no very heavy business has been placed. There are some large orders in sight, and manufacturers, having already secured a good supply of work, are in excellent spirits, and are predicting improving prices.

Nails.—The prices quoted are $2.20@$2.30; large lots have sold at less. There is less demand this week, and stocks are growing so large as to threaten prices.

Steel Rails.—It is rumored that the Scranton and Bethlehem people are offering rails at $27.50, and it is also said that this price has been heavily shaded on some good orders that have been placed. There are a good many would-be buyers in the market, and large transactions are looked for within a week or two, at even lower prices than have yet been named. Although the drop in prices is injurious to the steel rail interests, it has, at least, succeeded in drawing out a good many backward buyers, and will enable the mills to keep going for a while longer, even though they may not make much by it.

Old Rails.—Old rails range in price all the way from $18.50@$20, according to quality. Stocks are light, and there is not much demand.

Scrap Iron.—Stocks of good scrap are light, but very little is wanted and prices are therefore nominally firm. Good No. 1 is quoted at $20 to $20.50.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, August 15.

Anthracite.

The market has shown no improvement, and it is a source of general regret that no stoppage in August was ordered. The past few weeks of steady work have fully proved what we have always insisted upon, that the average output of steady work is 850,000 tons. There is probably not a single company to-day that is not accumulating coal, the Reading not excepted, and the glut at tide-water shipping points has already reached such a point that it is beginning to work its own cure to some extent. The loaded cars at this end are kept standing, and the lack of them at the collieries is forcing the latter into practical idleness, so that the output for last, and presumably for this week, is not much more than 800,000 tons. From this, it must not be inferred that the railroads are unable, with present shipping facilities, to handle an 850,000 ton output at all, as some have shown a disposition to do. It simply means that when the shipping points are choked through some cause, it can not be done. Nor would it be fair to argue that the trade is so poor that it alone is responsible for the accumulation. The fact is, that the sluggish movement of grain Eastward is creating a scarcity of cars for Westward shipment of coal, and that a considerable part of the coal that should go Westward is forced to tide-water, and aggravates an evil that is in itself great enough, though at the same time it brings its sure but inadequate cure. Since full work is to go on this month, no immediate prospect of an improvement is to be looked for. The first week of September, it is understood, is to be an idle one, though we do not expect it will do more than to correct partially the mistake made in August. At best, it means a restriction of only about 700,000 tons, since it gives every body an opportunity to rush in coal at the rate of 900,000 tons for the week following the idle week. The conviction is gaining ground that September and October will witness further stoppages, now that the idea of the 750,000 tons per week production is exploded.

Bituminous.

Freights continue unprecedentedly low, and business is dull, with low prices.

Philadelphia. August 15.

[From our Special Correspondent.]

The stoppage agreed upon, to take place the first week in September, has exerted an improving influence upon the anthracite coal trade, because it was almost unexpected; at least, a good many people thought that it would be delayed. But this prompt action on the part of the companies should serve as a warning to those consumers who have been hanging back, that there is nothing to be gained by delay, as there is no reason for them to hope for any break in the combination. There seems to be some kind of delusion in the minds of consumers as to what the combination can and will do; but the fact might as well be accepted first as last, that whatever restriction is necessary in order to maintain prices will be enforced. It is likely that either one or two weeks' additional restriction will be found necessary before the close of the season.

During the past week, orders have been coming in rather slowly, but negotiations are pending which will terminate in business in a few days, or certainly before the close of the month. Vessels are plenty at Port Richmond, and stocks there to-day are 48,000 tons. Very little change has taken place in the line trade since last week; domestic requirements that were expected this week have not come forward as freely as was promised, probably because householders are living in hopes of a reduction of from 25 to 50 cents a ton, which the agitations in local papers seem to lead them to expect. Manufacturing demand is still very light. The iron trade of Eastern Pennsylvania is still very sluggish, and there is no immediate prospect of any improvement. The larger consumers of coal, are waiting, buying small stocks of coal, and apparently expecting something new to turn up. The Reading Company is crowding stocks to Port Richmond as rapidly as possible. The tonnage of that company for the last week reported was 307,296 tons, against 294,114 for the corresponding week last year. Total shipments to date this year, 7,386,220 tons, against 6,573,309 tons for the same time last year, or an increase of over 800,000 tons. Shipments over the Schuylkill Canal show a slight decrease, as compared with last year. Shipments of the Delaware & Hudson Canal were 111,535 tons for the week, and 2,107,682 tons for the year to date, or 133,000 tons less than for the same time last year.

Our advices from New England are of a promising character, but promises have been more abundant than orders of late. The decline in manufacturing demand there is a severe loss to the coal companies. Stove sizes are held firmly, and pea and other small sizes are not shaded as they were. The condition of prices is, on the whole, very satisfactory to the companies. The production of the Clearfield region last week was 61,631 tons; Cumberland, 30,477 tons.

There are no new features in the bituminous trade.

Buffalo. August 14.

[From our Special Correspondent.]

The anthracite coal trade is reported to be in a healthy condition; that is, dealers stick to schedule rates and the close buyers have finally purchased their winter supplies, which are delivered quite freely. After September 1st, no trade is to be expected except for retail lots for small consumers or those who purchase a ton or less at a time. The price-list is unchanged. Bituminous coal is without great activity; manufacturers are working quite easily, and many establishments have been shut down for some weeks past. The overproduction keeps the prices low.

The coke trade is quiet; but hopes are entertained that it will brighten up in the near future. There is no variation in prices.

The sub-committee from the Anthracite Committee of Producers, etc., appointed at the request of the coal dealers of London, Ontario, Canada, to assist them in forming a local association similar to the one here, visited that city on Tuesday last, and accomplished the object sought, and report that they had a pleasant time socially as well as in a business point of view.

I hear that the Fletcher furnace at Black Rock, Buffalo, is going out of blast when the present stock of ore is consumed. They are using coke as well as lump coal. Per contra, the Charlotte Blast-Furnace, at Charlotte, Lake Ontario, has just blown in after undergoing extensive repairs at a heavy cost. This furnace has been shut down for several years.

Lake freighting at upper lake ports is very dull at present, and quite a number of vessels have temporarily retired from business awaiting better times. This makes tonnage here comparatively scarce, but freights are steady at unchanged quotations from last week. The following were the rates paid: To Chicago, Milwaukee, Green Bay, Lake Linden, Hancock, and Houghton, 70c.; to Kenosha, 80c.; to Detroit, 25c.; to Toledo, 20c. (gross ton); to Superior City and Duluth, on contract; to Port Arthur, on contract; and to Saginaw, 35c. Closing firm, and offerings of vessels moderate.

Shipments by lake from August 7th to 13th, both days inclusive, 50,100 tons, namely, 24,370 tons to Chicago, 9500 to Milwaukee, 7290 to Duluth, 1150 to Port Arthur, 1750 to Detroit, 450 to Toledo, 1030 to Houghton, 1350 to Lake Linden, 300 to Saginaw, 310 to Windsor, 1500 to Superior City, 1000 to Kenosha.

Receipts by lake the past week, none.

Receipts by Lake Shore & Michigan Southern Railroad for the past week, 936 tons; 564 for Buffalo and 372 for other points.

It is reported, on the authority of President Sloan, of the Lackawanna, that all the coal roads have agreed to stop mining coal during the first week in September, with the expectation of strengthening the market by the curtailment of production. The Lackawanna and the Lehigh took the step rather unwillingly at the urgent request of the other companies. Mr. Sloan considers the outlook for business to be reassuring, and feels that there will be entire harmony among the coal roads, and no cutting of rates.

Large quantities of anthracite coal are arriving here by canal from New York. The freight is 60 cents a gross ton. There is more to come.

The unexpected death, early yesterday morning, of Mr. Frank Williams, the well-known coal dealer, created an unusual feeling of sadness and regret among our marine and business men. The following obituary notice is from the columns of the Buffalo *Courier* of to-day:

Mr. Williams was of New England parentage, having been born in Brooklyn, Conn., August 7th, 1827. When ten years of age, he moved to Buffalo with his parents, and shortly after attaining his majority, was left, by the death of his father, the chief support of a widowed mother and a family of which he was the eldest. He adopted the profession of civil engineer and surveyor, and in his earlier years was honorably identified with the lake surveys, the widening and deepening of St. Clair River, and other public works that have led to the development of our great inland commerce. About twenty-five years ago, Mr. Williams turned his attention to the transportation business, and through his native sagacity and trustworthiness rapidly rose to the foremost ranks. Eleven years ago, he became interested in the coal business, and in this branch of commerce was likewise signally successful. He was the individual owner of the Washington mines at Reynoldsville, Pennsylvania, part owner of the Great Oak Ridge mines, and likewise financially interested in other coal property. At the time of his death, he was president of the Buffalo Creek Transfer Railroad Company, the presiding officer of the Oak Ridge Mining Company, and the general manager of the Merchants' Western line, which is owned exclusively by the firm.

Receipts of coal at Duluth for the week ended August 9th, 10,245 tons; total thus far this season, 171,660 tons.

Boston. August 14.

[From our Special Correspondent.]

The coal market appears to be affected more by the stock market than by the stock of coal at tide-water. But trade at this port moves on in the same quiet way, regardless. No fear is apprehended of a break in combination; for, as has already been stated, the critical month was undoubtedly June. Wall street is to a certain extent useful in causing, as it doubtless will, such further restriction as may be needed. The friction that the present unjust system caused is likely to result in its abandonment another year, particularly if the outlook is unfavorable to heavy production.

The demand this week is light. Business continues to be done on June contracts for the most part, and they seem likely to extend or to be extended throughout this month. Outside coal may be had at very low figures. Special red ash coals are still the firmest on the list. Full circular, $5.50 at Philadelphia, is asked for Lykens Valley, and immediate shipment not promised at that. Quotations generally are unchanged, and have the same nominal value as last week. Some of the companies are selling stove coal at $4.20, f. o. b. at New York, while others claim to be firm at $4.25, but are moving very little at the latter figure.

Our f. o. b. quotations are as follows: At New York, Stove, $4.25; Broken and Egg, $3.65; individual coals, $4.15@$4.20 for Stove, $3.50 for Broken and Egg. At Philadelphia, $3.90@$4 for Stove, $3.65 for Chestnut, $3.35@$3.50 for Broken and Egg, $2.50 for Pea. Special coals, $4.85 for Broken, $5.35 for Stove.

Pocket trade is fair for the season, at prices which are nearer to circular.

There continue to be sales of bituminous coal on this market at very low figures. This is occasioned by the crowding of more coal to this port on contracts than can be readily placed, but there is less difficulty from this source than there has been. The wharves are full, and Boston's coal-discharging capacity is taxed to its utmost. It is hardly necessary to say that this crowding is done on coal sold at a delivered price. Parties who bought f. o. b. are not crowded to receive coal. The Cumberland production is curtailed materially by the recent floods, but there is a sufficiency for the market at unchanged low figures. The mills are doing so little that no one is anxious for coal.

There has been a further drop in freights, we might almost write "as usual." Rates close weak, with a very large fleet reported in the coal trade, as there is but little other business to be done. Most vessels keep away from Southern waters at this period of the year. There is a prospect of continued low rates, and parties who have made season contracts, as many have, say at $1.40 from Baltimore, now wish they had not, with the current rate $1.10. We quote:

New York, 85c.@90c. a ton; Philadelphia, $1.05@$1.10; Baltimore, $1.10@$1.15; Newport News, $1@$1.10; Richmond, $1.20; Bay of Fundy, $1.30; Cape Breton, $1.50@$1.60.

There is a fair trade in retail circles, and dealers report less annoyance from cutting. We hear of a few contracts at about $5. We quote ton lots delivered:

White ash, furnace, and egg	$5.50
" " stove and nut	5.75
Red ash, egg	6.00
" " stove	6.25@ ....
Lorberry, egg and stove	6.75@ 7.00
Franklin, egg and stove	7.50
Lehigh, furnace, egg and stove	5.75
" nut	5.72

Wharf quotations: $4.35, Broken; $4.75, Stove.

The receipts of domestic coal at Boston for the month of July were 237,148 tons; from January 1st to August 1st, 1,124,837. These figures show, as compared with the same period of last year, a decrease of 40,869 tons in the receipts for July, and a decrease of 81,755 tons in the receipts from January 1st to August 1st.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ended August 9th, and year from January 1st:

Tons of 2240 lbs.	1884. Week.	1884. Year.	1883. Week.	1883. Year.
Wyoming Region.				
D. & H. Canal Co.	111,536	2,107,682	93,240	2,240,665
D. L. & W. RR. Co.	152,563	2,884,698	122,173	2,830,563
Penna. Coal Co.	38,542	727,710	36,095	808,391
L. V. RR. Co.	36,209	789,872	24,370	809,991
P. & N. Y. RR. Co.	7,421	126,297	4,243	123,248
C. RR. of N. J.	*	*	*	1,202,078
Penn. Canal Co.	12,474	214,440	14,680	236,763
North & West Br. RR.	19,271	500,069	7,118	274,049
	378,016	7,350,768	301,919	8,855,748
Lehigh Region.				
L. V. RR. Co.	123,752	2,580,736	106,530	2,866,149
C. RR. of N. J.	*	*	*	1,126,889
S. H. & W. B. RR.	3,694	133,626	1,880	34,197
	127,446	2,714,362	108,410	4,027,235
Schuylkill Region.				
P. & R. RR. Co.	301,009	6,199,724	186,248	4,154,326
Shamokin & Lykens Val.	*	*	†	776,324
	301,009	6,199,724	186,248	4,930,650
Sullivan Region.				
St Line&Sul.RR.Co.	....	43,411	1,380	37,415
Total	806,471	16,308,265	597,957	17,521,048
Increase	208,514	....	....	....
Decrease	....	1,212,783	....	....

* Included in tonnage of the Philadelphia & Reading Railroad.

† Report not received.

Total same time in 1879.....15,374,328 tons.
" " " " 1880.....12,766,801 "
" " " " 1881.....16,194,885 "
" " " " 1882.....16,621,691 "

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

The increase in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 124,865 tons, as compared with the corresponding period in 1883.

Comparative Statement of the Production of Bituminous Coal for the week ended August 9th, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

	1884. Week.	1884. Year.	1883. Week.	1883. Year.
Cumberland Region, Md.				
Tons of 2240 lbs.	55,994	1,638,887	55,998	1,435,084
Barclay Region, Pa.				
Barclay RR., tons of 2240 lbs.	3,741	187,039	5,526	188,278
Broad Top Region, Pa.				
Huntington & Broad Top RR., of 2240 lbs.	4,396	115,064	1,497	111,481
East Broad Top	.....	.....	418	26,142
Clearfield Region, Pa.				
Snow Shoe	3,451	110,875	4,146	142,754
Karthaus (Keating)	1,418	21,448	.....	.....
Tyrone & Clearfield.	61,963	1,861,531	51,898	1,708,987
Alleghany Region, Pa				
Gallitzin & Mountain	685	223,154	8,017	265,291
Pittsburg Region, Pa.				
West Penn RR.	5,528	169,518	5,563	256,497
SouthwestPenn.RR.	1,209	84,319	1,828	64,588
Pennsylvania RR.	4,976	169,780	24,706	821,625
Westmoreland Region, Pa.				
Pennsylvania RR.	33,052	778,960	17,700	338,389
Monongahela Region, Pa.				
Pennsylvania RR.	3,039	91,335	.....	.....
Total	179,452	5,451,910	177,297	5,359,716
Increase	2,155	92,194	...	...

Comparative Statement of the Transportation of Coke over the Pennsylvania Railroad for the week ended August 9th, and year from January 1st:

Tons of 2000 pounds.

	1884. Week.	1884. Year.	1883. Week.	1883. Year.
Gallitzin & Mountain (Alleghany Region)	2,477	80,304	954	53,707
West Penn. RR.	59	24,735	2,414	64,527
Southwest Penn. RR.	44,592	1,340,214	40,551	1,262,799
Penn. & Westmoreland Region, Pa. RR.	3,848	114,439	4,023	136,649
Monongahela, Penn. RR.	1,022	47,823	....	.....
Pittsburg Region, Pa. RR.	.....	136	....	501
Snow Shoe (Clearfield Region)	489	13,963	165	12,014
Total	52,487	1,621,664	48,107	1,530,197
Increase	4,380	91,467	.....	.....

FREIGHTS.

Coastwise Freights.
Per ton of 2240 lbs.
Representing the latest actual charters to Aug. 14th.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
Alexandria	.65@.80		
Annapolis			
Albany			
Baltimore	.58§		
Bangor	1.15	1.15	1.00
Bath, Me	1.05@1.10	1.10@1.15	1.00
Beverly	1.10		1.00
Boston, Mass	1.00@1.10		.90
Bristol	1.10		
Bridgeport, Conn.		1 05	.55
Brooklyn		1.00@1.05	
Buffalo, N. Y.	1.25§		
Cambridge, Mass.	1.15@1.20‡		.90‡
Cambridgeport	1.15@1.20‡		.90‡
Charleston, S. C.	.80	.70@.75	
Charlestown	1.10		
Chelsea	1.00@1.10		.90
City Point			
Com. Pt., Mass.	1.15		.90
E. Boston	1.00@1.10		.90
East Cambridge	1.10@1.20‡		.90‡
E. Gr'nwich, R. I.	1.05		
Fall River	1.05		70@80
Galveston			
Gardiner, Me	1.15¶		
Georgetown, D.C.	.65		
Gloucester	1.10		
Hartford			
Hackensack			
Hudson			
Lynn	1.25		
Marblehead			1.05
Medford			
Millville, N. J.			
Milton			
Newark, N. J.			
New Bedford	1.05	1.05	.80
Newburyport		1.35	1.05
New Haven		1.05	.55
New London		1.05	.65@.70
New-Berne			
Newport	1.10		.70@.80
New York		1.00	
Norfolk, Va	.60@.65		
Norwich			.70
Norwalk, Conn			
Pawtucket			
Philadelphia			
Portland, Me	.80*	1.10@1.15	.90
Portsmouth, Va.	.65		
Portsmouth, N.H.		1.20@1.25	1.05
Providence	1.00	1.00@1.05	.70@.75
Quincy Point	1.20		1.10
Richmond, Va	.80@.85		
Rockland, Me			
Rockport	1 40		
Roxbury, Mass.	1.25¶		
Saco	1.15¶*		.90†
Sag Harbor			.80
Salem, Mass.	1.10@1.20		.90
Saugus			
Savannah		1.00	
Somerset	1.05		
Staten Island			
Trenton			
Troy			
Wareham			
Washington	.65		
Weymouth			
Williamsbg, N.Y.			
Wilmington, Del.			
Wilmington, N.C.			
St. Thomas, W. I.			

*And discharging. †And discharging and towing. ‡3c. Per bridge extra. §Alongside. ¶And towing up and down. ¶And towing. **Below bridge.

RAIL AND CANAL FREIGHTS.

PENNSYLVANIA & NEW YORK CANAL AND RAILROAD COMPANY.

On and after Friday, August 1st, 1884, the rate on coal per gross ton, will be as follows:

WYOMING REGION, IN COAL CARS.

	Through Rate.	P. & N. Y. C. & RR. Proportion to Waverly.
Mines to Buffalo	$2.71	$1 08
" Buffalo (Main street)	2.71	1.05
" Black Rock	2.71	1.03
" Tonawanda	2.71	1.03
" La Salle	2.71	1.01
" Niagara Falls and Suspension Bridge	2.71	99
" Lockport	2.71	97
" Rochester	2.30	1.36
" Watkins (for water shipment)	1.38	1.08
" Fair Haven	2.01	
" Weedsp't for local pt's on N. Y. C. & H. R. RR	1.80	
" Auburn for local pt's on N. Y. C. & H. R. RR	1.80	
RETURNING BOX-CAR RATE.		
" Buffalo	2.41	97
" Black Rock	2.41	95
" Suspension Bridge	2 41	91
LEHIGH COAL—RETURNING BOX-CAR RATE.		
Penn Haven to Buffalo	2.41	1.16
" Black Rock	2.41	1.13
" Suspension Bridge	2 41	1.08
IN COAL CARS.		
" Fair Haven	2.16	
" Rochester	2.30	1.25

SOUTHERN CENTRAL RAILROAD AND LEHIGH VALLEY AND PENNSYLVANIA & NEW YORK CANAL AND RAILROAD COMPANY'S JOINT COAL RATE CIRCULAR.

On and after Friday, August 1st, 1884, the rate on coal, per gross ton, will be as follows:

WYOMING REGION, IN COAL CARS.

	Proportion to Fair Haven.
Mines to Fair Haven	$2.01
	Proportion to Sterling.
Mines to Sterling, for Oswego and for Rome, Watertown & Ogdensburg Railroad	$2.01

	Through rate.	Proportion to Weedsport.
Mines to Buffalo, Black Rock, Suspension Bridge, Tonawanda, Niagara Falls, and Lockport	$2.71	$1.77
Mines to Charlotte Docks	2.01	1.55
" Rochester	2.30	1.82
" Weedsport, for local points on New York Central & Hudson River Railroad		1.80
Mines to Weedsport, for Erie Canal, except Buffalo		1.70
" Weedsport, for transfer to line cars		1.56
		Proportion to Auburn.
Mines to Auburn, for Syracuse		$1.70
" Auburn, for local points on New York Central & Hudson River Railroad		1.70
		Proportion to Freeville.
Coxton to Freeville, for points on E. C. & N. RR.		$1.75

RETURNING BOX-CAR RATE.

	Through rate.	Proportion to Weedsport.
Mines to Buffalo, Black Rock, and Suspension Bridge	$2.41	$1.51

LEHIGH COAL—RETURNING BOX-CAR RATE.

Penn Haven to Buffalo, Black Rock, and Suspension Bridge	2.41	1.51

IN COAL CARS.

	Proportion to Fair Haven.
Penn Haven to Fair Haven	$2.16

	Through rate.	Proportion to Weedsport.
Penn Haven to Charlotte	$2.16	$1.70
Penn Haven to Rochester	2.30	1.82

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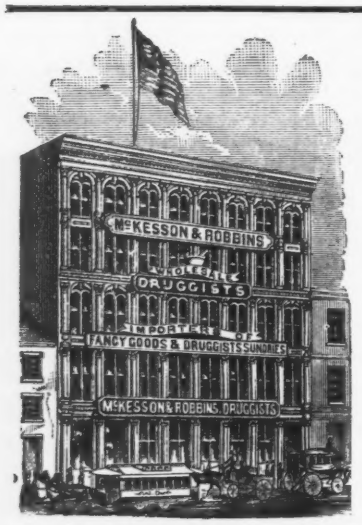

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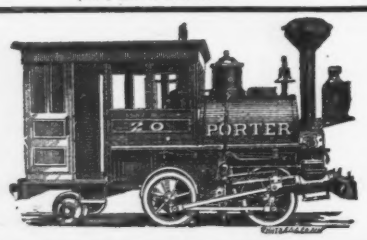

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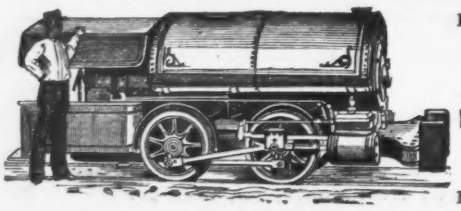

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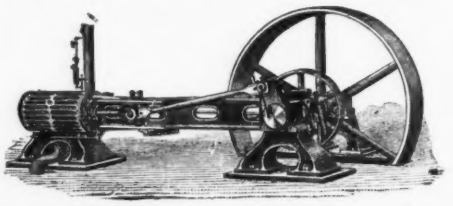

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